LAMPIRAN A

LISTING PROGRAM

A. Listing Program Dengan Bentuk Karakter *Font* Pada *Library*

1. M-File Pada GUI (Program Menu Utama): TA.m

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% --- Executes on button press in pushbutton1.
function pushbutton1_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Data Library
run library

% Menampilkan data
plot(handles.data,sbxA,sbyA,'bs',sbxB,sbyB,'rs',...
    sbxC,sbyC,'gs',sbxD,sbyD,'ms',sbxE,sbyE,'ys',...
    sbxF,sbyF,'ks',sbxG,sbyG,'cs',sbxH,sbyH,'ro',...
    sbxI,sbyI,'mo',sbxJ,sbyJ,'yo',sbxK,sbyK,'go',...
    sbxL,sbyL,'bo', sbxM,sbyM,'ko',sbxN,sbyN,'co',...
    sbxO,sbyO,'rv',sbxP,sbyP,'mv',sbxQ,sbyQ,'yv',...
    sbxR,sbyR,'bv',sbxS,sbyS,'kv',sbxT,sbyT,'cv',...
    sbxU,sbyU,'gv',sbxV,sbyV,'b^',sbxW,sbyW,'k^',...
    sbxX,sbyX,'r^',sbxY,sbyY,'y^',sbxZ,sbyZ,'c^',...
    xAC,yAC,'y+',xBC,yBC,'c+',xCC,yCC,'r+',xDC,yDC,'k+',...
    xEC,yEC,'b+',xFC,yFC,'m+',xGC,yGC,'g+',xHC,yHC,'bx',...
    xIC,yIC,'yx',xJC,yJC,'mx',xKC,yKC,'rx',xLC,yLC,'cx',...
    xMC,yMC,'gx',xNC,yNC,'kx',xOC,yOC,'yp',xPC,yPC,'cp',...
    xQC,yQC,'rp',xRC,yRC,'mp',xSC,ySC,'gp',xTC,yTC,'kp',...
    xUC,yUC,'bp',xVC,yVC,'r*',xWC,yWC,'m*',xXC,yXC,'y*',...
    xYC,yYC,'k*',xZC,yZC,'g*','LineWidth',2,'MarkerSize',8);

% Menampilkan Keterangan data
legend(handles.data,'A','B','C','D','E','F','G','H','I','J','K','L',
'M',...
    'N','O','P','Q','R','S','T','U','V','W','X','Y','Z',...
    'Centroid A','Centroid B','Centroid C','Centroid D','Centroid
E',...
    'Centroid F','Centroid G','Centroid H','Centroid I','Centroid
J',...
    'Centroid K','Centroid L','Centroid M','Centroid N','Centroid
O',...
    'Centroid P','Centroid Q','Centroid R','Centroid S','Centroid
T',...
    'Centroid U','Centroid V','Centroid W','Centroid X','Centroid
Y',...
    'Centroid Z','Location','NWO');
legend boxon

%Menampilkan Nilai Centroid
myform=guidata(gcbo);
set(myform.editXA,'string',xAC);set(myform.editYA,'string',yAC);
set(myform.editXB,'string',xBC);set(myform.editYB,'string',yBC);
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set(myform.editXC,'string',xCC);set(myform.editYC,'string',yCC);
set(myform.editXD,'string',xDC);set(myform.editYD,'string',yDC);
set(myform.editXE,'string',xEC);set(myform.editYE,'string',yEC);
set(myform.editXF,'string',xFC);set(myform.editYF,'string',yFC);
set(myform.editXG,'string',xGC);set(myform.editYG,'string',yGC);
set(myform.editXH,'string',xHC);set(myform.editYH,'string',yHC);
set(myform.editXI,'string',xIC);set(myform.editYI,'string',yIC);
set(myform.editXJ,'string',xJC);set(myform.editYJ,'string',yJC);
set(myform.editXK,'string',xKC);set(myform.editYK,'string',yKC);
set(myform.editXL,'string',xLC);set(myform.editYL,'string',yLC);
set(myform.editXM,'string',xMC);set(myform.editYM,'string',yMC);
set(myform.editXN,'string',xNC);set(myform.editYN,'string',yNC);
set(myform.editXO,'string',xOC);set(myform.editYO,'string',yOC);
set(myform.editXP,'string',xPC);set(myform.editYP,'string',yPC);
set(myform.editXQ,'string',xQC);set(myform.editYQ,'string',yQC);
set(myform.editXR,'string',xRC);set(myform.editYR,'string',yRC);
set(myform.editXS,'string',xSC);set(myform.editYS,'string',ySC);
set(myform.editXT,'string',xTC);set(myform.editYT,'string',yTC);
set(myform.editXU,'string',xUC);set(myform.editYU,'string',yUC);
set(myform.editXV,'string',xVC);set(myform.editYV,'string',yVC);
set(myform.editXW,'string',xWC);set(myform.editYW,'string',yWC);
set(myform.editXX,'string',xXC);set(myform.editYX,'string',yXC);
set(myform.editXY,'string',xYC);set(myform.editYY,'string',yYC);
set(myform.editXZ,'string',xZC);set(myform.editYZ,'string',yZC);

% --- Executes on button press in pushbutton2.
function pushbutton2_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton2 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
 file=uigetfile('*.bmp');
if~isequal(file,0)
    myform=guidata(gcbo);
    axes(myform.gbr);
    gambar=imread(file);
    imshow(gambar);
    set(myform.textnama,'String',file)
    open(file);
end

% Koordinat Karakter Yang Diuji (x,y)
new=imread(file);
[xnew,ynew] =biner(new)

% Data Library
run library

% Menampilkan Data
 plot(handles.centroid,...
    xAC,yAC,'y+',xBC,yBC,'c+',xCC,yCC,'r+',xDC,yDC,'k+',...
    xEC,yEC,'b+',xFC,yFC,'m+',xGC,yGC,'g+',xHC,yHC,'bx',...
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    xIC,yIC,'yx',xJC,yJC,'mx',xKC,yKC,'rx',xLC,yLC,'cx',...
    xMC,yMC,'gx',xNC,yNC,'kx',xOC,yOC,'yp',xPC,yPC,'cp',...
    xQC,yQC,'rp',xRC,yRC,'mp',xSC,ySC,'gp',xTC,yTC,'kp',...
    xUC,yUC,'bp',xVC,yVC,'r*',xWC,yWC,'m*',xXC,yXC,'y*',...
    xYC,yYC,'k*',xZC,yZC,'g*',...
    xnew,ynew,'bd','LineWidth',2,'MarkerSize',8);

% Menampilkan Keterangan data
legend(handles.centroid,...
    'Centroid A','Centroid B','Centroid C','Centroid D','Centroid
E',...
    'Centroid F','Centroid G','Centroid H','Centroid I','Centroid
J',...
    'Centroid K','Centroid L','Centroid M','Centroid N','Centroid
O',...
    'Centroid P','Centroid Q','Centroid R','Centroid S','Centroid
T',...
    'Centroid U','Centroid V','Centroid W','Centroid X','Centroid
Y',...
    'Centroid Z','new', 'Location','NWO');
legend boxon

% Menghitung Jarak dan Menampilkan hasil Pengenalan
EC=jarak(MC,xnew,ynew);
set(myform.edit1,'string',EC);
set(myform.editXnew,'string',xnew);
set(myform.editYnew,'string',ynew);
```

2. M-File : library.m

```
% Membaca Nilai Citra dan Pengelompokkan Karakter (cluster)
A(:,:,1)=imread('A1.bmp');A(:,:,2)=imread('A2.bmp');
A(:,:,3)=imread('A3.bmp');A(:,:,4)=imread('A4.bmp');
A(:,:,5)=imread('A5.bmp');A(:,:,6)=imread('A6.bmp');
A(:,:,7)=imread('A7.bmp');A(:,:,8)=imread('A8.bmp');
A(:,:,9)=imread('A9.bmp');A(:,:,10)=imread('A10.bmp');

B(:,:,1)=imread('B1.bmp');B(:,:,2)=imread('B2.bmp');
B(:,:,3)=imread('B3.bmp');B(:,:,4)=imread('B4.bmp');
B(:,:,5)=imread('B5.bmp');B(:,:,6)=imread('B6.bmp');
B(:,:,7)=imread('B7.bmp');B(:,:,8)=imread('B8.bmp');
B(:,:,9)=imread('B9.bmp');B(:,:,10)=imread('B10.bmp');

C(:,:,1)=imread('C1.bmp');C(:,:,2)=imread('C2.bmp');
C(:,:,3)=imread('C3.bmp');C(:,:,4)=imread('C4.bmp');
C(:,:,5)=imread('C5.bmp');C(:,:,6)=imread('C6.bmp');
C(:,:,7)=imread('C7.bmp');C(:,:,8)=imread('C8.bmp');
C(:,:,9)=imread('C9.bmp');C(:,:,10)=imread('C10.bmp');

D(:,:,1)=imread('D1.bmp');D(:,:,2)=imread('D2.bmp');
D(:,:,3)=imread('D3.bmp');D(:,:,4)=imread('D4.bmp');
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D(:,:,5)=imread('D5.bmp');D(:,:,6)=imread('D6.bmp');
D(:,:,7)=imread('D7.bmp');D(:,:,8)=imread('D8.bmp');
D(:,:,9)=imread('D9.bmp');D(:,:,10)=imread('D10.bmp');

E(:,:,1)=imread('E1.bmp');E(:,:,2)=imread('E2.bmp');
E(:,:,3)=imread('E3.bmp');E(:,:,4)=imread('E4.bmp');
E(:,:,5)=imread('E5.bmp');E(:,:,6)=imread('E6.bmp');
E(:,:,7)=imread('E7.bmp');E(:,:,8)=imread('E8.bmp');
E(:,:,9)=imread('E9.bmp');E(:,:,10)=imread('E10.bmp');

F(:,:,1)=imread('F1.bmp');F(:,:,2)=imread('F2.bmp');
F(:,:,3)=imread('F3.bmp');F(:,:,4)=imread('F4.bmp');
F(:,:,5)=imread('F5.bmp');F(:,:,6)=imread('F6.bmp');
F(:,:,7)=imread('F7.bmp');F(:,:,8)=imread('F8.bmp');
F(:,:,9)=imread('F9.bmp');F(:,:,10)=imread('F10.bmp');

G(:,:,1)=imread('G1.bmp');G(:,:,2)=imread('G2.bmp');
G(:,:,3)=imread('G3.bmp');G(:,:,4)=imread('G4.bmp');
G(:,:,5)=imread('G5.bmp');G(:,:,6)=imread('G6.bmp');
G(:,:,7)=imread('G7.bmp');G(:,:,8)=imread('G8.bmp');
G(:,:,9)=imread('G9.bmp');G(:,:,10)=imread('G10.bmp');

H(:,:,1)=imread('H1.bmp');H(:,:,2)=imread('H2.bmp');
H(:,:,3)=imread('H3.bmp');H(:,:,4)=imread('H4.bmp');
H(:,:,5)=imread('H5.bmp');H(:,:,6)=imread('H6.bmp');
H(:,:,7)=imread('H7.bmp');H(:,:,8)=imread('H8.bmp');
H(:,:,9)=imread('H9.bmp');H(:,:,10)=imread('H10.bmp');

I(:,:,1)=imread('I1.bmp');I(:,:,2)=imread('I2.bmp');
I(:,:,3)=imread('I3.bmp');I(:,:,4)=imread('I4.bmp');
I(:,:,5)=imread('I5.bmp');I(:,:,6)=imread('I6.bmp');
I(:,:,7)=imread('I7.bmp');I(:,:,8)=imread('I8.bmp');
I(:,:,9)=imread('I9.bmp');I(:,:,10)=imread('I10.bmp');

J(:,:,1)=imread('J1.bmp');J(:,:,2)=imread('J2.bmp');
J(:,:,3)=imread('J3.bmp');J(:,:,4)=imread('J4.bmp');
J(:,:,5)=imread('J5.bmp');J(:,:,6)=imread('J6.bmp');
J(:,:,7)=imread('J7.bmp');J(:,:,8)=imread('J8.bmp');
J(:,:,9)=imread('J9.bmp');J(:,:,10)=imread('J10.bmp');

K(:,:,1)=imread('K1.bmp');K(:,:,2)=imread('K2.bmp');
K(:,:,3)=imread('K3.bmp');K(:,:,4)=imread('K4.bmp');
K(:,:,5)=imread('K5.bmp');K(:,:,6)=imread('K6.bmp');
K(:,:,7)=imread('K7.bmp');K(:,:,8)=imread('K8.bmp');
K(:,:,9)=imread('K9.bmp');K(:,:,10)=imread('K10.bmp');

L(:,:,1)=imread('L1.bmp');L(:,:,2)=imread('L2.bmp');
L(:,:,3)=imread('L3.bmp');L(:,:,4)=imread('L4.bmp');
L(:,:,5)=imread('L5.bmp');L(:,:,6)=imread('L6.bmp');
L(:,:,7)=imread('L7.bmp');L(:,:,8)=imread('L8.bmp');
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L(:,:,9)=imread('L9.bmp');L(:,:,10)=imread('L10.bmp');

M(:,:,1)=imread('M1.bmp');M(:,:,2)=imread('M2.bmp');
M(:,:,3)=imread('M3.bmp');M(:,:,4)=imread('M4.bmp');
M(:,:,5)=imread('M5.bmp');M(:,:,6)=imread('M6.bmp');
M(:,:,7)=imread('M7.bmp');M(:,:,8)=imread('M8.bmp');
M(:,:,9)=imread('M9.bmp');M(:,:,10)=imread('M10.bmp');

N(:,:,1)=imread('N1.bmp');N(:,:,2)=imread('N2.bmp');
N(:,:,3)=imread('N3.bmp');N(:,:,4)=imread('N4.bmp');
N(:,:,5)=imread('N5.bmp');N(:,:,6)=imread('N6.bmp');
N(:,:,7)=imread('N7.bmp');N(:,:,8)=imread('N8.bmp');
N(:,:,9)=imread('N9.bmp');N(:,:,10)=imread('N10.bmp');

O(:,:,1)=imread('O1.bmp');O(:,:,2)=imread('O2.bmp');
O(:,:,3)=imread('O3.bmp');O(:,:,4)=imread('O4.bmp');
O(:,:,5)=imread('O5.bmp');O(:,:,6)=imread('O6.bmp');
O(:,:,7)=imread('O7.bmp');O(:,:,8)=imread('O8.bmp');
O(:,:,9)=imread('O9.bmp');O(:,:,10)=imread('O10.bmp');

P(:,:,1)=imread('P1.bmp');P(:,:,2)=imread('P2.bmp');
P(:,:,3)=imread('P3.bmp');P(:,:,4)=imread('P4.bmp');
P(:,:,5)=imread('P5.bmp');P(:,:,6)=imread('P6.bmp');
P(:,:,7)=imread('P7.bmp');P(:,:,8)=imread('P8.bmp');
P(:,:,9)=imread('P9.bmp');P(:,:,10)=imread('P10.bmp');

Q(:,:,1)=imread('Q1.bmp');Q(:,:,2)=imread('Q2.bmp');
Q(:,:,3)=imread('Q3.bmp');Q(:,:,4)=imread('Q4.bmp');
Q(:,:,5)=imread('Q5.bmp');Q(:,:,6)=imread('Q6.bmp');
Q(:,:,7)=imread('Q7.bmp');Q(:,:,8)=imread('Q8.bmp');
Q(:,:,9)=imread('Q9.bmp');Q(:,:,10)=imread('Q10.bmp');

R(:,:,1)=imread('R1.bmp');R(:,:,2)=imread('R2.bmp');
R(:,:,3)=imread('R3.bmp');R(:,:,4)=imread('R4.bmp');
R(:,:,5)=imread('R5.bmp');R(:,:,6)=imread('R6.bmp');
R(:,:,7)=imread('R7.bmp');R(:,:,8)=imread('R8.bmp');
R(:,:,9)=imread('R9.bmp');R(:,:,10)=imread('R10.bmp');

S(:,:,1)=imread('S1.bmp');S(:,:,2)=imread('S2.bmp');
S(:,:,3)=imread('S3.bmp');S(:,:,4)=imread('S4.bmp');
S(:,:,5)=imread('S5.bmp');S(:,:,6)=imread('S6.bmp');
S(:,:,7)=imread('S7.bmp');S(:,:,8)=imread('S8.bmp');
S(:,:,9)=imread('S9.bmp');S(:,:,10)=imread('S10.bmp');

T(:,:,1)=imread('T1.bmp');T(:,:,2)=imread('T2.bmp');
T(:,:,3)=imread('T3.bmp');T(:,:,4)=imread('T4.bmp');
T(:,:,5)=imread('T5.bmp');T(:,:,6)=imread('T6.bmp');
T(:,:,7)=imread('T7.bmp');T(:,:,8)=imread('T8.bmp');
T(:,:,9)=imread('T9.bmp');T(:,:,10)=imread('T10.bmp');
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U(:,:,1)=imread('U1.bmp');U(:,:,2)=imread('U2.bmp');
U(:,:,3)=imread('U3.bmp');U(:,:,4)=imread('U4.bmp');
U(:,:,5)=imread('U5.bmp');U(:,:,6)=imread('U6.bmp');
U(:,:,7)=imread('U7.bmp');U(:,:,8)=imread('U8.bmp');
U(:,:,9)=imread('U9.bmp');U(:,:,10)=imread('U10.bmp');

V(:,:,1)=imread('V1.bmp');V(:,:,2)=imread('V2.bmp');
V(:,:,3)=imread('V3.bmp');V(:,:,4)=imread('V4.bmp');
V(:,:,5)=imread('V5.bmp');V(:,:,6)=imread('V6.bmp');
V(:,:,7)=imread('V7.bmp');V(:,:,8)=imread('V8.bmp');
V(:,:,9)=imread('V9.bmp');V(:,:,10)=imread('V10.bmp');

W(:,:,1)=imread('W1.bmp');W(:,:,2)=imread('W2.bmp');
W(:,:,3)=imread('W3.bmp');W(:,:,4)=imread('W4.bmp');
W(:,:,5)=imread('W5.bmp');W(:,:,6)=imread('W6.bmp');
W(:,:,7)=imread('W7.bmp');W(:,:,8)=imread('W8.bmp');
W(:,:,9)=imread('W9.bmp');W(:,:,10)=imread('W10.bmp');

X(:,:,1)=imread('X1.bmp');X(:,:,2)=imread('X2.bmp');
X(:,:,3)=imread('X3.bmp');X(:,:,4)=imread('X4.bmp');
X(:,:,5)=imread('X5.bmp');X(:,:,6)=imread('X6.bmp');
X(:,:,7)=imread('X7.bmp');X(:,:,8)=imread('X8.bmp');
X(:,:,9)=imread('X9.bmp');X(:,:,10)=imread('X10.bmp');

Y(:,:,1)=imread('Y1.bmp');Y(:,:,2)=imread('Y2.bmp');
Y(:,:,3)=imread('Y3.bmp');Y(:,:,4)=imread('Y4.bmp');
Y(:,:,5)=imread('Y5.bmp');Y(:,:,6)=imread('Y6.bmp');
Y(:,:,7)=imread('Y7.bmp');Y(:,:,8)=imread('Y8.bmp');
Y(:,:,9)=imread('Y9.bmp');Y(:,:,10)=imread('Y10.bmp');

Z(:,:,1)=imread('Z1.bmp');Z(:,:,2)=imread('Z2.bmp');
Z(:,:,3)=imread('Z3.bmp');Z(:,:,4)=imread('Z4.bmp');
Z(:,:,5)=imread('Z5.bmp');Z(:,:,6)=imread('Z6.bmp');
Z(:,:,7)=imread('Z7.bmp');Z(:,:,8)=imread('Z8.bmp');
Z(:,:,9)=imread('Z9.bmp');Z(:,:,10)=imread('Z10.bmp');

% Koordinat A (x,y)
for i=1:10
    [x1,y1] =biner(A(:,:,i))
    sbxA(i)=x1;
    sbyA(i)=y1;
end
xAC=mean(sbxA);
yAC=mean(sbyA);
MC(1,1)=xAC;
MC(1,2)=yAC;

% Koordinat B(x,y)
for i=1:10
    [x1,y1] =biner(B(:,:,i))
```

```
    sbxB(i)=x1;
    sbyB(i)=y1;
end
xBC=mean(sbxB);
yBC=mean(sbyB);
MC(2,1)=xBC;
MC(2,2)=yBC;

% Koordinat C(x,y)
for i=1:10
    [x1,y1] =biner(C(:,:,i))
    sbxC(i)=x1;
    sbyC(i)=y1;
end
xCC=mean(sbxC);
yCC=mean(sbyC);
MC(3,1)=xCC;
MC(3,2)=yCC;

% Koordinat D(x,y)
for i=1:10
    [x1,y1] =biner(D(:,:,i))
    sbxD(i)=x1;
    sbyD(i)=y1;
end
xDC=mean(sbxD);
yDC=mean(sbyD);
MC(4,1)=xDC;
MC(4,2)=yDC;

% Koordinat E(x,y)
for i=1:10
    [x1,y1] =biner(E(:,:,i))
    sbxE(i)=x1;
    sbyE(i)=y1;
end
xEC=mean(sbxE);
yEC=mean(sbyE);
MC(5,1)=xEC;
MC(5,2)=yEC;

% Koordinat F(x,y)
for i=1:10
    [x1,y1] =biner(F(:,:,i))
    sbxF(i)=x1;
    sbyF(i)=y1;
end
xFC=mean(sbxF);
yFC=mean(sbyF);
MC(6,1)=xFC;
MC(6,2)=yFC;
```

```
% Koordinat G(x,y)
for i=1:10
    [x1,y1] =biner(G(:,:,i))
    sbxG(i)=x1;
    sbyG(i)=y1;
end
xGC=mean(sbxG);
yGC=mean(sbyG);
MC(7,1)=xGC;
MC(7,2)=yGC;

% Koordinat H(x,y)
for i=1:10
    [x1,y1] =biner(H(:,:,i))
    sbxH(i)=x1;
    sbyH(i)=y1;
end
xHC=mean(sbxH);
yHC=mean(sbyH);
MC(8,1)=xHC;
MC(8,2)=yHC;

% Koordinat I(x,y)
for i=1:10
    [x1,y1] =biner(I(:,:,i))
    sbxI(i)=x1;
    sbyI(i)=y1;
end
xIC=mean(sbxI);
yIC=mean(sbyI);
MC(9,1)=xIC;
MC(9,2)=yIC;

% Koordinat J(x,y)
for i=1:10
    [x1,y1] =biner(J(:,:,i))
    sbxJ(i)=x1;
    sbyJ(i)=y1;
end
xJC=mean(sbxJ);
yJC=mean(sbyJ);
MC(10,1)=xJC;
MC(10,2)=yJC;

% Koordinat K(x,y)
for i=1:10
    [x1,y1] =biner(K(:,:,i))
    sbxK(i)=x1;
    sbyK(i)=y1;
end
xKC=mean(sbxK);
```

```
yKC=mean(sbyK);
MC(11,1)=xKC;
MC(11,2)=yKC;

% Koordinat L(x,y)
for i=1:10
    [x1,y1] =biner(L(:,:,i))
    sbxL(i)=x1;
    sbyL(i)=y1;
end
xLC=mean(sbxL);
yLC=mean(sbyL);
MC(12,1)=xLC;
MC(12,2)=yLC;

% Koordinat M(x,y)
for i=1:10
    [x1,y1] =biner(M(:,:,i))
    sbxM(i)=x1;
    sbyM(i)=y1;
end
xMC=mean(sbxM);
yMC=mean(sbyM);
MC(13,1)=xMC;
MC(13,2)=yMC;

% Koordinat N(x,y)
for i=1:10
    [x1,y1] =biner(N(:,:,i))
    sbxN(i)=x1;
    sbyN(i)=y1;
end
xNC=mean(sbxN);
yNC=mean(sbyN);
MC(14,1)=xNC;
MC(14,2)=yNC;

% Koordinat O(x,y)
for i=1:10
    [x1,y1] =biner(O(:,:,i))
    sbxO(i)=x1;
    sbyO(i)=y1;
end
xOC=mean(sbxO);
yOC=mean(sbyO);
MC(15,1)=xOC;
MC(15,2)=yOC;

% Koordinat P(x,y)
for i=1:10
    [x1,y1] =biner(P(:,:,i))
```

```
    sbxP(i)=x1;
    sbyP(i)=y1;
end
xPC=mean(sbxP);
yPC=mean(sbyP);
MC(16,1)=xPC;
MC(16,2)=yPC;

% Koordinat Q(x,y)
for i=1:10
    [x1,y1] =biner(Q(:,:,i))
    sbxQ(i)=x1;
    sbyQ(i)=y1;
end
xQC=mean(sbxQ);
yQC=mean(sbyQ);
MC(17,1)=xQC;
MC(17,2)=yQC;

% Koordinat R(x,y)
for i=1:10
    [x1,y1] =biner(R(:,:,i))
    sbxR(i)=x1;
    sbyR(i)=y1;
end
xRC=mean(sbxR);
yRC=mean(sbyR);
MC(18,1)=xRC;
MC(18,2)=yRC;

% Koordinat S(x,y)
for i=1:10
    [x1,y1] =biner(S(:,:,i))
    sbxS(i)=x1;
    sbyS(i)=y1;
end
xSC=mean(sbxS);
ySC=mean(sbyS);
MC(19,1)=xSC;
MC(19,2)=ySC;

% Koordinat T(x,y)
for i=1:10
    [x1,y1] =biner(T(:,:,i))
    sbxT(i)=x1;
    sbyT(i)=y1;
end
xTC=mean(sbxT);
yTC=mean(sbyT);
MC(20,1)=xTC;
MC(20,2)=yTC;
```

```
% Koordinat U(x,y)
for i=1:10
    [x1,y1] =biner(U(:,:,i))
    sbxU(i)=x1;
    sbyU(i)=y1;
end
xUC=mean(sbxU);
yUC=mean(sbyU);
MC(21,1)=xUC;
MC(21,2)=yUC;

% Koordinat V(x,y)
for i=1:10
    [x1,y1] =biner(V(:,:,i))
    sbxV(i)=x1;
    sbyV(i)=y1;
end
xVC=mean(sbxV);
yVC=mean(sbyV);
MC(22,1)=xVC;
MC(22,2)=yVC;

% Koordinat W(x,y)
for i=1:10
    [x1,y1] =biner(W(:,:,i))
    sbxW(i)=x1;
    sbyW(i)=y1;
end
xWC=mean(sbxW);
yWC=mean(sbyW);
MC(23,1)=xWC;
MC(23,2)=yWC;

% Koordinat X(x,y)
for i=1:10
    [x1,y1] =biner(X(:,:,i))
    sbxX(i)=x1;
    sbyX(i)=y1;
end
xXC=mean(sbxX);
yXC=mean(sbyX);
MC(24,1)=xXC;
MC(24,2)=yXC;

% Koordinat Y(x,y)
for i=1:10
    [x1,y1] =biner(Y(:,:,i))
    sbxY(i)=x1;
    sbyY(i)=y1;
end
xYC=mean(sbxY);
```

```
yYC=mean(sbyY);
MC(25,1)=xYC;
MC(25,2)=yYC;

% Koordinat Z(x,y)
for i=1:10
    [x1,y1] =biner(Z(:,:,i))
    sbxZ(i)=x1;
    sbyZ(i)=y1;
end
xZC=mean(sbxZ);
yZC=mean(sbyZ);
MC(26,1)=xZC;
MC(26,2)=yZC;
```

3. M-File : biner.m

```
% Transformasi Biner ke Koordinat (x,y)
function  [x1,y1] =biner(x)
BARIS=70;
KOLOM=50;
OUT=zeros(BARIS,KOLOM);
for i=1:BARIS
    A=0;
    for j=1:KOLOM
        if x(i,j)<64
            OUT(i,j)=1;
        else
            OUT(i,j)=0;
        end
        A=A+OUT(i,j)*(2^(j-1));
    end
    data1(i,1)=A;
end
x1=sum(data1)/2^49;
for i=1:KOLOM
    B=0;
    for j=1:BARIS
        B=B+OUT(j,i)*(2^(j-1));
    end
    data2(i,1)=B;
end
y1=sum(data2)/2^69;
```

4. M-File : jarak.m

```
%Menghitung  jarak,  mencari  jarak  minimum,  dan  Hasil  Pengenalan
Karakter
function EC=jarak(MC,xnew,ynew)
K=char('A','B','C','D','E','F','G','H','I','J','K','L','M','N',
'O','P',...
'Q','R','S','T','U','V','W','X','Y','Z');
n=size(MC,1);
```

```
for i=1:n
    jarak(i,1)=sqrt((xnew-MC(i,1))^2+(ynew-MC(i,2))^2);
end
for i=1:n
    m=min(jarak);
    if m==jarak(i,1);
        posisi=i;
    end
end
EC=K(posisi);
```

B. Listing Program Dengan Bentuk Karakter Yang Dibentuk Sendiri Pada *Library*

1. M-File Pada GUI (Program Menu Utama): TA.m

```
% --- Executes on button press in pushbutton1.
function pushbutton1_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Data Library
run library


% Menampilkan Data
plot(handles.data,sbxA,sbyA,'bs',sbxB,sbyB,'rs',...
    sbxC,sbyC,'gs',sbxD,sbyD,'ms',sbxE,sbyE,'ys',...
    sbxF,sbyF,'ks',sbxG,sbyG,'cs',sbxH,sbyH,'ro',...
    sbxI,sbyI,'mo',sbxJ,sbyJ,'yo',sbxK,sbyK,'go',...
    sbxL,sbyL,'bo', sbxM,sbyM,'ko',sbxN,sbyN,'co',...
    sbxO,sbyO,'rv',sbxP,sbyP,'mv',sbxQ,sbyQ,'yv',...
    sbxR,sbyR,'bv',sbxS,sbyS,'kv',sbxT,sbyT,'cv',...
    sbxU,sbyU,'gv',sbxV,sbyV,'b^',sbxW,sbyW,'k^',...
    sbxX,sbyX,'r^',sbxY,sbyY,'y^',sbxZ,sbyZ,'c^',...
    sbxZ0,sbyZ0,'g^', sbxZ1,sbyZ1,'m^',sbxZ2,sbyZ2,'b>',...
    sbxZ3,sbyZ3,'k>',sbxZ4,sbyZ4,'c>',sbxZ5,sbyZ5,'g>',...
    sbxZ6,sbyZ6,'r>',sbxZ7,sbyZ7,'m>',sbxZ8,sbyZ8,'y>',...
    sbxZ9,sbyZ9,'kh',...
    xAC,yAC,'y+',xBC,yBC,'c+',xCC,yCC,'r+',xDC,yDC,'k+',...
    xEC,yEC,'b+',xFC,yFC,'m+',xGC,yGC,'g+',xHC,yHC,'bx',...
    xIC,yIC,'yx',xJC,yJC,'mx',xKC,yKC,'rx',xLC,yLC,'cx',...
    xMC,yMC,'gx',xNC,yNC,'kx',xOC,yOC,'yp',xPC,yPC,'cp',...
    xQC,yQC,'rp',xRC,yRC,'mp',xSC,ySC,'gp',xTC,yTC,'kp',...
    xUC,yUC,'bp',xVC,yVC,'r*',xWC,yWC,'m*',xXC,yXC,'y*',...
    xYC,yYC,'k*',xZC,yZC,'g*',xZ0C,yZ0C,'b*',xZ1C,yZ1C,'c*',...
    xZ2C,yZ2C,'g<',xZ3C,yZ3C,'r<',xZ4C,yZ4C,'k<',xZ5C,yZ5C,'m<',...
    xZ6C,yZ6C,'y<',xZ7C,yZ7C,'b<',xZ8C,yZ8C,'c<',xZ9C,yZ9C,'yh',...
    'LineWidth',2,'MarkerSize',8);

% Menampilkan Keterangan data
legend(handles.data,'A','B','C','D','E','F','G','H','I','J','K','L',
'M',...
    'N','O','P','Q','R','S','T','U','V','W','X','Y','Z','0','1','2',
'3',...
    '4','5','6','7','8','9',...
    'Centroid A','Centroid B','Centroid C','Centroid D','Centroid
E',...
    'Centroid F','Centroid G','Centroid H','Centroid I','Centroid
J',...
    'Centroid K','Centroid L','Centroid M','Centroid N','Centroid
O',...
```

```
    'Centroid P','Centroid Q','Centroid R','Centroid S','Centroid
T',...
    'Centroid U','Centroid V','Centroid W','Centroid X','Centroid
Y',...
    'Centroid Z', 'Centroid 0','Centroid 1','Centroid 2','Centroid
3',...
    'Centroid 4','Centroid 5','Centroid 6','Centroid 7','Centroid
8',...
    'Centroid 9', 'Location','NWO');
legend boxon

%Menampilkan Nilai Centroid
myform=guidata(gcbo);
set(myform.editXA,'string',xAC);set(myform.editYA,'string',yAC);
set(myform.editXB,'string',xBC);set(myform.editYB,'string',yBC);
set(myform.editXC,'string',xCC);set(myform.editYC,'string',yCC);
set(myform.editXD,'string',xDC);set(myform.editYD,'string',yDC);
set(myform.editXE,'string',xEC);set(myform.editYE,'string',yEC);
set(myform.editXF,'string',xFC);set(myform.editYF,'string',yFC);
set(myform.editXG,'string',xGC);set(myform.editYG,'string',yGC);
set(myform.editXH,'string',xHC);set(myform.editYH,'string',yHC);
set(myform.editXI,'string',xIC);set(myform.editYI,'string',yIC);
set(myform.editXJ,'string',xJC);set(myform.editYJ,'string',yJC);
set(myform.editXK,'string',xKC);set(myform.editYK,'string',yKC);
set(myform.editXL,'string',xLC);set(myform.editYL,'string',yLC);
set(myform.editXM,'string',xMC);set(myform.editYM,'string',yMC);
set(myform.editXN,'string',xNC);set(myform.editYN,'string',yNC);
set(myform.editXO,'string',xOC);set(myform.editYO,'string',yOC);
set(myform.editXP,'string',xPC);set(myform.editYP,'string',yPC);
set(myform.editXQ,'string',xQC);set(myform.editYQ,'string',yQC);
set(myform.editXR,'string',xRC);set(myform.editYR,'string',yRC);
set(myform.editXS,'string',xSC);set(myform.editYS,'string',ySC);
set(myform.editXT,'string',xTC);set(myform.editYT,'string',yTC);
set(myform.editXU,'string',xUC);set(myform.editYU,'string',yUC);
set(myform.editXV,'string',xVC);set(myform.editYV,'string',yVC);
set(myform.editXW,'string',xWC);set(myform.editYW,'string',yWC);
set(myform.editXX,'string',xXC);set(myform.editYX,'string',yXC);
set(myform.editXY,'string',xYC);set(myform.editYY,'string',yYC);
set(myform.editXZ,'string',xZC);set(myform.editYZ,'string',yZC);
set(myform.editX0,'string',xZ0C);set(myform.editY0,'string',yZ0C);
set(myform.editX1,'string',xZ1C);set(myform.editY1,'string',yZ1C);
set(myform.editX2,'string',xZ2C);set(myform.editY2,'string',yZ2C);
set(myform.editX3,'string',xZ3C);set(myform.editY3,'string',yZ3C);
set(myform.editX4,'string',xZ4C);set(myform.editY4,'string',yZ4C);
set(myform.editX5,'string',xZ5C);set(myform.editY5,'string',yZ5C);
set(myform.editX6,'string',xZ6C);set(myform.editY6,'string',yZ6C);
set(myform.editX7,'string',xZ7C);set(myform.editY7,'string',yZ7C);
set(myform.editX8,'string',xZ8C);set(myform.editY8,'string',yZ8C);
set(myform.editX9,'string',xZ9C);set(myform.editY9,'string',yZ9C);
```

```
% --- Executes on button press in pushbutton2.
function pushbutton2_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton2 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

file=uigetfile('*.bmp');
if~isequal(file,0)
    myform=guidata(gcbo);
    axes(myform.gbr);
    gambar=imread(file);
    imshow(gambar);
    set(myform.textnama,'String',file)
    open(file);
end

% Koordinat Karakter Yang Diuji (x,y)
new=imread(file);
[xnew,ynew] =biner(new)

% Data Library
run library

% Menampilkan Data
plot(handles.centroid,...
   xAC,yAC,'y+',xBC,yBC,'c+',xCC,yCC,'r+',xDC,yDC,'k+',...
    xEC,yEC,'b+',xFC,yFC,'m+',xGC,yGC,'g+',xHC,yHC,'bx',...
    xIC,yIC,'yx',xJC,yJC,'mx',xKC,yKC,'rx',xLC,yLC,'cx',...
    xMC,yMC,'gx',xNC,yNC,'kx',xOC,yOC,'yp',xPC,yPC,'cp',...
    xQC,yQC,'rp',xRC,yRC,'mp',xSC,ySC,'gp',xTC,yTC,'kp',...
    xUC,yUC,'bp',xVC,yVC,'r*',xWC,yWC,'m*',xXC,yXC,'y*',...
    xYC,yYC,'k*',xZC,yZC,'g*',xZ0C,yZ0C,'b*',xZ1C,yZ1C,'c*',...
    xZ2C,yZ2C,'g<',xZ3C,yZ3C,'r<',xZ4C,yZ4C,'k<',xZ5C,yZ5C,'m<',...
    xZ6C,yZ6C,'y<',xZ7C,yZ7C,'b<',xZ8C,yZ8C,'c<',xZ9C,yZ9C,'yh',...
    xnew,ynew,'bd','LineWidth',2,'MarkerSize',8);
% Menampilkan Keterangan Data
legend(handles.centroid,...
    'Centroid A','Centroid B','Centroid C','Centroid D','Centroid
E',...
    'Centroid F','Centroid G','Centroid H','Centroid I','Centroid
J',...
    'Centroid K','Centroid L','Centroid M','Centroid N','Centroid
O',...
    'Centroid P','Centroid Q','Centroid R','Centroid S','Centroid
T',...
    'Centroid U','Centroid V','Centroid W','Centroid X','Centroid
Y',...
    'Centroid Z', 'Centroid 0','Centroid 1','Centroid 2','Centroid
3',...
    'Centroid 4','Centroid 5','Centroid 6','Centroid 7','Centroid
8',...
```

```
    'Centroid 9','new', 'Location','NWO');
legend boxon

% Menghitung Jarak dan Menampilkan hasil Pengenalan
EC=jarak(MC,xnew,ynew);
set(myform.edit1,'string',EC);
set(myform.editXnew,'string',xnew);
set(myform.editYnew,'string',ynew);
```

2. M-File : library.m

```
% Membaca Nilai Citra dan Pengelompokkan Karakter (cluster)
A(:,:,1)=imread('A1.bmp');A(:,:,2)=imread('A2.bmp');
A(:,:,3)=imread('A3.bmp');A(:,:,4)=imread('A4.bmp');
A(:,:,5)=imread('A5.bmp');A(:,:,6)=imread('A6.bmp');
A(:,:,7)=imread('A7.bmp');A(:,:,8)=imread('A8.bmp');
A(:,:,9)=imread('A9.bmp');A(:,:,10)=imread('A10.bmp');

B(:,:,1)=imread('B1.bmp');B(:,:,2)=imread('B2.bmp');
B(:,:,3)=imread('B3.bmp');B(:,:,4)=imread('B4.bmp');
B(:,:,5)=imread('B5.bmp');B(:,:,6)=imread('B6.bmp');
B(:,:,7)=imread('B7.bmp');B(:,:,8)=imread('B8.bmp');
B(:,:,9)=imread('B9.bmp');B(:,:,10)=imread('B10.bmp');

C(:,:,1)=imread('C1.bmp');C(:,:,2)=imread('C2.bmp');
C(:,:,3)=imread('C3.bmp');C(:,:,4)=imread('C4.bmp');
C(:,:,5)=imread('C5.bmp');C(:,:,6)=imread('C6.bmp');
C(:,:,7)=imread('C7.bmp');C(:,:,8)=imread('C8.bmp');
C(:,:,9)=imread('C9.bmp');C(:,:,10)=imread('C10.bmp');

D(:,:,1)=imread('D1.bmp');D(:,:,2)=imread('D2.bmp');
D(:,:,3)=imread('D3.bmp');D(:,:,4)=imread('D4.bmp');
D(:,:,5)=imread('D5.bmp');D(:,:,6)=imread('D6.bmp');
D(:,:,7)=imread('D7.bmp');D(:,:,8)=imread('D8.bmp');
D(:,:,9)=imread('D9.bmp');D(:,:,10)=imread('D10.bmp');

E(:,:,1)=imread('E1.bmp');E(:,:,2)=imread('E2.bmp');
E(:,:,3)=imread('E3.bmp');E(:,:,4)=imread('E4.bmp');
E(:,:,5)=imread('E5.bmp');E(:,:,6)=imread('E6.bmp');
E(:,:,7)=imread('E7.bmp');E(:,:,8)=imread('E8.bmp');
E(:,:,9)=imread('E9.bmp');E(:,:,10)=imread('E10.bmp');

F(:,:,1)=imread('F1.bmp');F(:,:,2)=imread('F2.bmp');
F(:,:,3)=imread('F3.bmp');F(:,:,4)=imread('F4.bmp');
F(:,:,5)=imread('F5.bmp');F(:,:,6)=imread('F6.bmp');
F(:,:,7)=imread('F7.bmp');F(:,:,8)=imread('F8.bmp');
F(:,:,9)=imread('F9.bmp');F(:,:,10)=imread('F10.bmp');

G(:,:,1)=imread('G1.bmp');G(:,:,2)=imread('G2.bmp');
G(:,:,3)=imread('G3.bmp');G(:,:,4)=imread('G4.bmp');
G(:,:,5)=imread('G5.bmp');G(:,:,6)=imread('G6.bmp');
```

```
G(:,:,7)=imread('G7.bmp');G(:,:,8)=imread('G8.bmp');
G(:,:,9)=imread('G9.bmp');G(:,:,10)=imread('G10.bmp');

H(:,:,1)=imread('H1.bmp');H(:,:,2)=imread('H2.bmp');
H(:,:,3)=imread('H3.bmp');H(:,:,4)=imread('H4.bmp');
H(:,:,5)=imread('H5.bmp');H(:,:,6)=imread('H6.bmp');
H(:,:,7)=imread('H7.bmp');H(:,:,8)=imread('H8.bmp');
H(:,:,9)=imread('H9.bmp');H(:,:,10)=imread('H10.bmp');

I(:,:,1)=imread('I1.bmp');I(:,:,2)=imread('I2.bmp');
I(:,:,3)=imread('I3.bmp');I(:,:,4)=imread('I4.bmp');
I(:,:,5)=imread('I5.bmp');I(:,:,6)=imread('I6.bmp');
I(:,:,7)=imread('I7.bmp');I(:,:,8)=imread('I8.bmp');
I(:,:,9)=imread('I9.bmp');I(:,:,10)=imread('I10.bmp');

J(:,:,1)=imread('J1.bmp');J(:,:,2)=imread('J2.bmp');
J(:,:,3)=imread('J3.bmp');J(:,:,4)=imread('J4.bmp');
J(:,:,5)=imread('J5.bmp');J(:,:,6)=imread('J6.bmp');
J(:,:,7)=imread('J7.bmp');J(:,:,8)=imread('J8.bmp');
J(:,:,9)=imread('J9.bmp');J(:,:,10)=imread('J10.bmp');

K(:,:,1)=imread('K1.bmp');K(:,:,2)=imread('K2.bmp');
K(:,:,3)=imread('K3.bmp');K(:,:,4)=imread('K4.bmp');
K(:,:,5)=imread('K5.bmp');K(:,:,6)=imread('K6.bmp');
K(:,:,7)=imread('K7.bmp');K(:,:,8)=imread('K8.bmp');
K(:,:,9)=imread('K9.bmp');K(:,:,10)=imread('K10.bmp');

L(:,:,1)=imread('L1.bmp');L(:,:,2)=imread('L2.bmp');
L(:,:,3)=imread('L3.bmp');L(:,:,4)=imread('L4.bmp');
L(:,:,5)=imread('L5.bmp');L(:,:,6)=imread('L6.bmp');
L(:,:,7)=imread('L7.bmp');L(:,:,8)=imread('L8.bmp');
L(:,:,9)=imread('L9.bmp');L(:,:,10)=imread('L10.bmp');

M(:,:,1)=imread('M1.bmp');M(:,:,2)=imread('M2.bmp');
M(:,:,3)=imread('M3.bmp');M(:,:,4)=imread('M4.bmp');
M(:,:,5)=imread('M5.bmp');M(:,:,6)=imread('M6.bmp');
M(:,:,7)=imread('M7.bmp');M(:,:,8)=imread('M8.bmp');
M(:,:,9)=imread('M9.bmp');M(:,:,10)=imread('M10.bmp');

N(:,:,1)=imread('N1.bmp');N(:,:,2)=imread('N2.bmp');
N(:,:,3)=imread('N3.bmp');N(:,:,4)=imread('N4.bmp');
N(:,:,5)=imread('N5.bmp');N(:,:,6)=imread('N6.bmp');
N(:,:,7)=imread('N7.bmp');N(:,:,8)=imread('N8.bmp');
N(:,:,9)=imread('N9.bmp');N(:,:,10)=imread('N10.bmp');

O(:,:,1)=imread('O1.bmp');O(:,:,2)=imread('O2.bmp');
O(:,:,3)=imread('O3.bmp');O(:,:,4)=imread('O4.bmp');
O(:,:,5)=imread('O5.bmp');O(:,:,6)=imread('O6.bmp');
O(:,:,7)=imread('O7.bmp');O(:,:,8)=imread('O8.bmp');
O(:,:,9)=imread('O9.bmp');O(:,:,10)=imread('O10.bmp');
```

```
P(:,:,1)=imread('P1.bmp');P(:,:,2)=imread('P2.bmp');
P(:,:,3)=imread('P3.bmp');P(:,:,4)=imread('P4.bmp');
P(:,:,5)=imread('P5.bmp');P(:,:,6)=imread('P6.bmp');
P(:,:,7)=imread('P7.bmp');P(:,:,8)=imread('P8.bmp');
P(:,:,9)=imread('P9.bmp');P(:,:,10)=imread('P10.bmp');

Q(:,:,1)=imread('Q1.bmp');Q(:,:,2)=imread('Q2.bmp');
Q(:,:,3)=imread('Q3.bmp');Q(:,:,4)=imread('Q4.bmp');
Q(:,:,5)=imread('Q5.bmp');Q(:,:,6)=imread('Q6.bmp');
Q(:,:,7)=imread('Q7.bmp');Q(:,:,8)=imread('Q8.bmp');
Q(:,:,9)=imread('Q9.bmp');Q(:,:,10)=imread('Q10.bmp');

R(:,:,1)=imread('R1.bmp');R(:,:,2)=imread('R2.bmp');
R(:,:,3)=imread('R3.bmp');R(:,:,4)=imread('R4.bmp');
R(:,:,5)=imread('R5.bmp');R(:,:,6)=imread('R6.bmp');
R(:,:,7)=imread('R7.bmp');R(:,:,8)=imread('R8.bmp');
R(:,:,9)=imread('R9.bmp');R(:,:,10)=imread('R10.bmp');

S(:,:,1)=imread('S1.bmp');S(:,:,2)=imread('S2.bmp');
S(:,:,3)=imread('S3.bmp');S(:,:,4)=imread('S4.bmp');
S(:,:,5)=imread('S5.bmp');S(:,:,6)=imread('S6.bmp');
S(:,:,7)=imread('S7.bmp');S(:,:,8)=imread('S8.bmp');
S(:,:,9)=imread('S9.bmp');S(:,:,10)=imread('S10.bmp');

T(:,:,1)=imread('T1.bmp');T(:,:,2)=imread('T2.bmp');
T(:,:,3)=imread('T3.bmp');T(:,:,4)=imread('T4.bmp');
T(:,:,5)=imread('T5.bmp');T(:,:,6)=imread('T6.bmp');
T(:,:,7)=imread('T7.bmp');T(:,:,8)=imread('T8.bmp');
T(:,:,9)=imread('T9.bmp');T(:,:,10)=imread('T10.bmp');

U(:,:,1)=imread('U1.bmp');U(:,:,2)=imread('U2.bmp');
U(:,:,3)=imread('U3.bmp');U(:,:,4)=imread('U4.bmp');
U(:,:,5)=imread('U5.bmp');U(:,:,6)=imread('U6.bmp');
U(:,:,7)=imread('U7.bmp');U(:,:,8)=imread('U8.bmp');
U(:,:,9)=imread('U9.bmp');U(:,:,10)=imread('U10.bmp');

V(:,:,1)=imread('V1.bmp');V(:,:,2)=imread('V2.bmp');
V(:,:,3)=imread('V3.bmp');V(:,:,4)=imread('V4.bmp');
V(:,:,5)=imread('V5.bmp');V(:,:,6)=imread('V6.bmp');
V(:,:,7)=imread('V7.bmp');V(:,:,8)=imread('V8.bmp');
V(:,:,9)=imread('V9.bmp');V(:,:,10)=imread('V10.bmp');

W(:,:,1)=imread('W1.bmp');W(:,:,2)=imread('W2.bmp');
W(:,:,3)=imread('W3.bmp');W(:,:,4)=imread('W4.bmp');
W(:,:,5)=imread('W5.bmp');W(:,:,6)=imread('W6.bmp');
W(:,:,7)=imread('W7.bmp');W(:,:,8)=imread('W8.bmp');
W(:,:,9)=imread('W9.bmp');W(:,:,10)=imread('W10.bmp');

X(:,:,1)=imread('X1.bmp');X(:,:,2)=imread('X2.bmp');
X(:,:,3)=imread('X3.bmp');X(:,:,4)=imread('X4.bmp');
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X(:,:,5)=imread('X5.bmp');X(:,:,6)=imread('X6.bmp');
X(:,:,7)=imread('X7.bmp');X(:,:,8)=imread('X8.bmp');
X(:,:,9)=imread('X9.bmp');X(:,:,10)=imread('X10.bmp');

Y(:,:,1)=imread('Y1.bmp');Y(:,:,2)=imread('Y2.bmp');
Y(:,:,3)=imread('Y3.bmp');Y(:,:,4)=imread('Y4.bmp');
Y(:,:,5)=imread('Y5.bmp');Y(:,:,6)=imread('Y6.bmp');
Y(:,:,7)=imread('Y7.bmp');Y(:,:,8)=imread('Y8.bmp');
Y(:,:,9)=imread('Y9.bmp');Y(:,:,10)=imread('Y10.bmp');

Z(:,:,1)=imread('Z1.bmp');Z(:,:,2)=imread('Z2.bmp');
Z(:,:,3)=imread('Z3.bmp');Z(:,:,4)=imread('Z4.bmp');
Z(:,:,5)=imread('Z5.bmp');Z(:,:,6)=imread('Z6.bmp');
Z(:,:,7)=imread('Z7.bmp');Z(:,:,8)=imread('Z8.bmp');
Z(:,:,9)=imread('Z9.bmp');Z(:,:,10)=imread('Z10.bmp');

Z0(:,:,1)=imread('Z101.bmp');Z0(:,:,2)=imread('Z102.bmp');
Z0(:,:,3)=imread('Z103.bmp');Z0(:,:,4)=imread('Z104.bmp');
Z0(:,:,5)=imread('Z105.bmp');Z0(:,:,6)=imread('Z106.bmp');
Z0(:,:,7)=imread('Z107.bmp');Z0(:,:,8)=imread('Z108.bmp');
Z0(:,:,9)=imread('Z109.bmp');Z0(:,:,10)=imread('Z1010.bmp');

Z1(:,:,1)=imread('Z111.bmp');Z1(:,:,2)=imread('Z112.bmp');
Z1(:,:,3)=imread('Z113.bmp');Z1(:,:,4)=imread('Z114.bmp');
Z1(:,:,5)=imread('Z115.bmp');Z1(:,:,6)=imread('Z116.bmp');
Z1(:,:,7)=imread('Z117.bmp');Z1(:,:,8)=imread('Z118.bmp');
Z1(:,:,9)=imread('Z119.bmp');Z1(:,:,10)=imread('Z1110.bmp');

Z1(:,:,1)=imread('Z111.bmp');Z1(:,:,2)=imread('Z112.bmp');
Z1(:,:,3)=imread('Z113.bmp');Z1(:,:,4)=imread('Z114.bmp');
Z1(:,:,5)=imread('Z115.bmp');Z1(:,:,6)=imread('Z116.bmp');
Z1(:,:,7)=imread('Z117.bmp');Z1(:,:,8)=imread('Z118.bmp');
Z1(:,:,9)=imread('Z119.bmp');Z1(:,:,10)=imread('Z1110.bmp');

Z2(:,:,1)=imread('Z121.bmp');Z2(:,:,2)=imread('Z122.bmp');
Z2(:,:,3)=imread('Z123.bmp');Z2(:,:,4)=imread('Z124.bmp');
Z2(:,:,5)=imread('Z125.bmp');Z2(:,:,6)=imread('Z126.bmp');
Z2(:,:,7)=imread('Z127.bmp');Z2(:,:,8)=imread('Z128.bmp');
Z2(:,:,9)=imread('Z129.bmp');Z2(:,:,10)=imread('Z1210.bmp');

Z3(:,:,1)=imread('Z131.bmp');Z3(:,:,2)=imread('Z132.bmp');
Z3(:,:,3)=imread('Z133.bmp');Z3(:,:,4)=imread('Z134.bmp');
Z3(:,:,5)=imread('Z135.bmp');Z3(:,:,6)=imread('Z136.bmp');
Z3(:,:,7)=imread('Z137.bmp');Z3(:,:,8)=imread('Z138.bmp');
Z3(:,:,9)=imread('Z139.bmp');Z3(:,:,10)=imread('Z1310.bmp');

Z4(:,:,1)=imread('Z141.bmp');Z4(:,:,2)=imread('Z142.bmp');
Z4(:,:,3)=imread('Z143.bmp');Z4(:,:,4)=imread('Z144.bmp');
Z4(:,:,5)=imread('Z145.bmp');Z4(:,:,6)=imread('Z146.bmp');
Z4(:,:,7)=imread('Z147.bmp');Z4(:,:,8)=imread('Z148.bmp');
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Z4(:,:,9)=imread('Z149.bmp');Z4(:,:,10)=imread('Z1410.bmp');

Z5(:,:,1)=imread('Z151.bmp');Z5(:,:,2)=imread('Z152.bmp');
Z5(:,:,3)=imread('Z153.bmp');Z5(:,:,4)=imread('Z154.bmp');
Z5(:,:,5)=imread('Z155.bmp');Z5(:,:,6)=imread('Z156.bmp');
Z5(:,:,7)=imread('Z157.bmp');Z5(:,:,8)=imread('Z158.bmp');
Z5(:,:,9)=imread('Z159.bmp');Z5(:,:,10)=imread('Z1510.bmp');

Z6(:,:,1)=imread('Z161.bmp');Z6(:,:,2)=imread('Z162.bmp');
Z6(:,:,3)=imread('Z163.bmp');Z6(:,:,4)=imread('Z164.bmp');
Z6(:,:,5)=imread('Z165.bmp');Z6(:,:,6)=imread('Z166.bmp');
Z6(:,:,7)=imread('Z167.bmp');Z6(:,:,8)=imread('Z168.bmp');
Z6(:,:,9)=imread('Z169.bmp');Z6(:,:,10)=imread('Z1610.bmp');

Z7(:,:,1)=imread('Z171.bmp');Z7(:,:,2)=imread('Z172.bmp');
Z7(:,:,3)=imread('Z173.bmp');Z7(:,:,4)=imread('Z174.bmp');
Z7(:,:,5)=imread('Z175.bmp');Z7(:,:,6)=imread('Z176.bmp');
Z7(:,:,7)=imread('Z177.bmp');Z7(:,:,8)=imread('Z178.bmp');
Z7(:,:,9)=imread('Z179.bmp');Z7(:,:,10)=imread('Z1710.bmp');

Z8(:,:,1)=imread('Z181.bmp');Z8(:,:,2)=imread('Z182.bmp');
Z8(:,:,3)=imread('Z183.bmp');Z8(:,:,4)=imread('Z184.bmp');
Z8(:,:,5)=imread('Z185.bmp');Z8(:,:,6)=imread('Z186.bmp');
Z8(:,:,7)=imread('Z187.bmp');Z8(:,:,8)=imread('Z188.bmp');
Z8(:,:,9)=imread('Z189.bmp');Z8(:,:,10)=imread('Z1810.bmp');

Z9(:,:,1)=imread('Z191.bmp');Z9(:,:,2)=imread('Z192.bmp');
Z9(:,:,3)=imread('Z193.bmp');Z9(:,:,4)=imread('Z194.bmp');
Z9(:,:,5)=imread('Z195.bmp');Z9(:,:,6)=imread('Z196.bmp');
Z9(:,:,7)=imread('Z197.bmp');Z9(:,:,8)=imread('Z198.bmp');
Z9(:,:,9)=imread('Z199.bmp');Z9(:,:,10)=imread('Z1910.bmp');

% Koordinat A (x,y)
for i=1:10
    [x1,y1] =biner(A(:,:,i))
    sbxA(i)=x1;
    sbyA(i)=y1;
end
xAC=mean(sbxA);
yAC=mean(sbyA);
MC(1,1)=xAC;
MC(1,2)=yAC;

% Koordinat B(x,y)
for i=1:10
    [x1,y1] =biner(B(:,:,i))
    sbxB(i)=x1;
    sbyB(i)=y1;
end
xBC=mean(sbxB);
```

```
yBC=mean(sbyB);
MC(2,1)=xBC;
MC(2,2)=yBC;

% Koordinat C(x,y)
for i=1:10
    [x1,y1] =biner(C(:,:,i))
    sbxC(i)=x1;
    sbyC(i)=y1;
end
xCC=mean(sbxC);
yCC=mean(sbyC);
MC(3,1)=xCC;
MC(3,2)=yCC;

% Koordinat D(x,y)
for i=1:10
    [x1,y1] =biner(D(:,:,i))
    sbxD(i)=x1;
    sbyD(i)=y1;
end
xDC=mean(sbxD);
yDC=mean(sbyD);
MC(4,1)=xDC;
MC(4,2)=yDC;

% Koordinat E(x,y)
for i=1:10
    [x1,y1] =biner(E(:,:,i))
    sbxE(i)=x1;
    sbyE(i)=y1;
end
xEC=mean(sbxE);
yEC=mean(sbyE);
MC(5,1)=xEC;
MC(5,2)=yEC;

% Koordinat F(x,y)
for i=1:10
    [x1,y1] =biner(F(:,:,i))
    sbxF(i)=x1;
    sbyF(i)=y1;
end
xFC=mean(sbxF);
yFC=mean(sbyF);
MC(6,1)=xFC;
MC(6,2)=yFC;

% Koordinat G(x,y)
for i=1:10
    [x1,y1] =biner(G(:,:,i))
```

```
    sbxG(i)=x1;
    sbyG(i)=y1;
end
xGC=mean(sbxG);
yGC=mean(sbyG);
MC(7,1)=xGC;
MC(7,2)=yGC;

% Koordinat H(x,y)
for i=1:10
    [x1,y1] =biner(H(:,:,i))
    sbxH(i)=x1;
    sbyH(i)=y1;
end
xHC=mean(sbxH);
yHC=mean(sbyH);
MC(8,1)=xHC;
MC(8,2)=yHC;

% Koordinat I(x,y)
for i=1:10
    [x1,y1] =biner(I(:,:,i))
    sbxI(i)=x1;
    sbyI(i)=y1;
end
xIC=mean(sbxI);
yIC=mean(sbyI);
MC(9,1)=xIC;
MC(9,2)=yIC;

% Koordinat J(x,y)
for i=1:10
    [x1,y1] =biner(J(:,:,i))
    sbxJ(i)=x1;
    sbyJ(i)=y1;
end
xJC=mean(sbxJ);
yJC=mean(sbyJ);
MC(10,1)=xJC;
MC(10,2)=yJC;

% Koordinat K(x,y)
for i=1:10
    [x1,y1] =biner(K(:,:,i))
    sbxK(i)=x1;
    sbyK(i)=y1;
end
xKC=mean(sbxK);
yKC=mean(sbyK);
MC(11,1)=xKC;
MC(11,2)=yKC;
```

```
% Koordinat L(x,y)
for i=1:10
    [x1,y1] =biner(L(:,:,i))
    sbxL(i)=x1;
    sbyL(i)=y1;
end
xLC=mean(sbxL);
yLC=mean(sbyL);
MC(12,1)=xLC;
MC(12,2)=yLC;

% Koordinat M(x,y)
for i=1:10
    [x1,y1] =biner(M(:,:,i))
    sbxM(i)=x1;
    sbyM(i)=y1;
end
xMC=mean(sbxM);
yMC=mean(sbyM);
MC(13,1)=xMC;
MC(13,2)=yMC;

% Koordinat N(x,y)
for i=1:10
    [x1,y1] =biner(N(:,:,i))
    sbxN(i)=x1;
    sbyN(i)=y1;
end
xNC=mean(sbxN);
yNC=mean(sbyN);
MC(14,1)=xNC;
MC(14,2)=yNC;

% Koordinat O(x,y)
for i=1:10
    [x1,y1] =biner(O(:,:,i))
    sbxO(i)=x1;
    sbyO(i)=y1;
end
xOC=mean(sbxO);
yOC=mean(sbyO);
MC(15,1)=xOC;
MC(15,2)=yOC;

% Koordinat P(x,y)
for i=1:10
    [x1,y1] =biner(P(:,:,i))
    sbxP(i)=x1;
    sbyP(i)=y1;
end
xPC=mean(sbxP);
```

```
yPC=mean(sbyP);
MC(16,1)=xPC;
MC(16,2)=yPC;

% Koordinat Q(x,y)
for i=1:10
    [x1,y1] =biner(Q(:,:,i))
    sbxQ(i)=x1;
    sbyQ(i)=y1;
end
xQC=mean(sbxQ);
yQC=mean(sbyQ);
MC(17,1)=xQC;
MC(17,2)=yQC;

% Koordinat R(x,y)
for i=1:10
    [x1,y1] =biner(R(:,:,i))
    sbxR(i)=x1;
    sbyR(i)=y1;
end
xRC=mean(sbxR);
yRC=mean(sbyR);
MC(18,1)=xRC;
MC(18,2)=yRC;


% Koordinat S(x,y)
for i=1:10
    [x1,y1] =biner(S(:,:,i))
    sbxS(i)=x1;
    sbyS(i)=y1;
end
xSC=mean(sbxS);
ySC=mean(sbyS);
MC(19,1)=xSC;
MC(19,2)=ySC;

% Koordinat T(x,y)
for i=1:10
    [x1,y1] =biner(T(:,:,i))
    sbxT(i)=x1;
    sbyT(i)=y1;
end
xTC=mean(sbxT);
yTC=mean(sbyT);
MC(20,1)=xTC;
MC(20,2)=yTC;

% Koordinat U(x,y)
for i=1:10
```

```
    [x1,y1] =biner(U(:,:,i))
    sbxU(i)=x1;
    sbyU(i)=y1;
end
xUC=mean(sbxU);
yUC=mean(sbyU);
MC(21,1)=xUC;
MC(21,2)=yUC;

% Koordinat V(x,y)
for i=1:10
    [x1,y1] =biner(V(:,:,i))
    sbxV(i)=x1;
    sbyV(i)=y1;
end
xVC=mean(sbxV);
yVC=mean(sbyV);
MC(22,1)=xVC;
MC(22,2)=yVC;

% Koordinat W(x,y)
for i=1:10
    [x1,y1] =biner(W(:,:,i))
    sbxW(i)=x1;
    sbyW(i)=y1;
end
xWC=mean(sbxW);
yWC=mean(sbyW);
MC(23,1)=xWC;
MC(23,2)=yWC;

% Koordinat X(x,y)
for i=1:10
    [x1,y1] =biner(X(:,:,i))
    sbxX(i)=x1;
    sbyX(i)=y1;
end
xXC=mean(sbxX);
yXC=mean(sbyX);
MC(24,1)=xXC;
MC(24,2)=yXC;

% Koordinat Y(x,y)
for i=1:10
    [x1,y1] =biner(Y(:,:,i))
    sbxY(i)=x1;
    sbyY(i)=y1;
end
xYC=mean(sbxY);
yYC=mean(sbyY);
MC(25,1)=xYC;
```

```
MC(25,2)=yYC;

% Koordinat Z(x,y)
for i=1:10
    [x1,y1] =biner(Z(:,:,i))
    sbxZ(i)=x1;
    sbyZ(i)=y1;
end
xZC=mean(sbxZ);
yZC=mean(sbyZ);
MC(26,1)=xZC;
MC(26,2)=yZC;

% Koordinat Z0(x,y)
for i=1:10
    [x1,y1] =biner(Z0(:,:,i))
    sbxZ0(i)=x1;
    sbyZ0(i)=y1;
end
xZ0C=mean(sbxZ0);
yZ0C=mean(sbyZ0);
MC(27,1)=xZ0C;
MC(27,2)=yZ0C;

% Koordinat Z1(x,y)
for i=1:10
    [x1,y1] =biner(Z1(:,:,i))
    sbxZ1(i)=x1;
    sbyZ1(i)=y1;
end
xZ1C=mean(sbxZ1);
yZ1C=mean(sbyZ1);
MC(28,1)=xZ1C;
MC(28,2)=yZ1C;

% Koordinat Z2(x,y)
for i=1:10
    [x1,y1] =biner(Z2(:,:,i))
    sbxZ2(i)=x1;
    sbyZ2(i)=y1;
end
xZ2C=mean(sbxZ2);
yZ2C=mean(sbyZ2);
MC(29,1)=xZ2C;
MC(29,2)=yZ2C;

% Koordinat Z3(x,y)
for i=1:10
    [x1,y1] =biner(Z3(:,:,i))
    sbxZ3(i)=x1;
    sbyZ3(i)=y1;
```

```
end
xZ3C=mean(sbxZ3);
yZ3C=mean(sbyZ3);
MC(30,1)=xZ3C;
MC(30,2)=yZ3C;

% Koordinat Z4(x,y)
for i=1:10
    [x1,y1] =biner(Z4(:,:,i))
    sbxZ4(i)=x1;
    sbyZ4(i)=y1;
end
xZ4C=mean(sbxZ4);
yZ4C=mean(sbyZ4);
MC(31,1)=xZ4C;
MC(31,2)=yZ4C;

% Koordinat Z5(x,y)
for i=1:10
    [x1,y1] =biner(Z5(:,:,i))
    sbxZ5(i)=x1;
    sbyZ5(i)=y1;
end
xZ5C=mean(sbxZ5);
yZ5C=mean(sbyZ5)
MC(32,1)=xZ5C;
MC(32,2)=yZ5C;
% Koordinat Z6(x,y)
for i=1:10
    [x1,y1] =biner(Z6(:,:,i))
    sbxZ6(i)=x1;
    sbyZ6(i)=y1;
end
xZ6C=mean(sbxZ6);
yZ6C=mean(sbyZ6);
MC(33,1)=xZ6C;
MC(33,2)=yZ6C;

% Koordinat Z7(x,y)
for i=1:10
    [x1,y1] =biner(Z7(:,:,i))
    sbxZ7(i)=x1;
    sbyZ7(i)=y1;
end
xZ7C=mean(sbxZ7);
yZ7C=mean(sbyZ7);
MC(34,1)=xZ7C;
MC(34,2)=yZ7C;

% Koordinat Z8(x,y)
for i=1:10
```

```
    [x1,y1] =biner(Z8(:,:,i))
    sbxZ8(i)=x1;
    sbyZ8(i)=y1;
end
xZ8C=mean(sbxZ8);
yZ8C=mean(sbyZ8);
MC(35,1)=xZ8C;
MC(35,2)=yZ8C;

% Koordinat Z9(x,y)
for i=1:10
    [x1,y1] =biner(Z9(:,:,i))
    sbxZ9(i)=x1;
    sbyZ9(i)=y1;
end
xZ9C=mean(sbxZ9);
yZ9C=mean(sbyZ9);
MC(36,1)=xZ9C;
MC(36,2)=yZ9C;
```

3. M-File : biner.m

```
% Transformasi Biner ke Koordinat (x,y)
function  [x1,y1] =biner(x)
BARIS=70;
KOLOM=50;
OUT=zeros(BARIS,KOLOM);
for i=1:BARIS
    A=0;
    for j=1:KOLOM
        if x(i,j)<64
            OUT(i,j)=1;
        else
            OUT(i,j)=0;
        end
        A=A+OUT(i,j)*(2^(j-1));
    end
    data1(i,1)=A;
end
x1=sum(data1)/2^49;
for i=1:KOLOM
    B=0;
    for j=1:BARIS
        B=B+OUT(j,i)*(2^(j-1));
    end
    data2(i,1)=B;
end
y1=sum(data2)/2^69;
```

4. M-File : jarak.m

```
% Menghitung jarak, mencari jarak minimum, dan Hasil Pengenalan
Karakter
function EC=jarak(MC,xnew,ynew)
K=char('A','B','C','D','E','F','G','H','I','J','K','L','M','N','O','
P',...
'Q','R','S','T','U','V','W','X','Y','Z','0','1','2','3','4','5','6',
...
'7','8','9');
n=size(MC,1);
for i=1:n
    jarak(i,1)=sqrt((xnew-MC(i,1))^2+(ynew-MC(i,2))^2);
end
for i=1:n
    m=min(jarak);
    if m==jarak(i,1);
        posisi=i;
    end
end
EC=K(posisi);
```

LAMPIRAN B

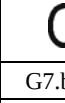
GAMBAR SAMPEL KARAKTER

Berikut ini adalah gambar sampel karakter yang digunakan dalam realisasi program

B1. Contoh Karakter Font Pada Library			
			
A1.bmp	B1.bmp	C1.bmp	D1.bmp
			
A2.bmp	B2.bmp	C2.bmp	D2.bmp
			
A3.bmp	B3.bmp	C3.bmp	D3.bmp
			
A4.bmp	B4.bmp	C4.bmp	D4.bmp
			
A5.bmp	B5.bmp	C5.bmp	D5.bmp
			
A6.bmp	B6.bmp	C6.bmp	D6.bmp
			
A7.bmp	B7.bmp	C7.bmp	D7.bmp
			
A8.bmp	B8.bmp	C8.bmp	D8.bmp
			
A9.bmp	B9.bmp	C9.bmp	D9.bmp
			
A10.bmp	B10.bmp	C10.bmp	D10.bmp

B2. Contoh Karakter Yang Akan Diuji			
KA1.bmp	KB1.bmp	KC1.bmp	KD1.bmp
KA2.bmp	KB2.bmp	KC2.bmp	KD2.bmp
KA3.bmp	KB3.bmp	KC3.bmp	KD3.bmp
KA4.bmp	KB4.bmp	KC4.bmp	KD4.bmp
KA5.bmp	KB5.bmp	KC5.bmp	KD5.bmp
KA6.bmp	KB6.bmp	KC6.bmp	KD6.bmp
KA7.bmp	KB7.bmp	KC7.bmp	KD7.bmp
KA8.bmp	KB8.bmp	KC8.bmp	KD8.bmp
KA9.bmp	KB9.bmp	KC9.bmp	KD9.bmp
KA10.bmp	KB10.bmp	KC10.bmp	KD10.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
A1.bmp	B1.bmp	C1.bmp	D1.bmp
A2.bmp	B2.bmp	C2.bmp	D2.bmp
A3.bmp	B3.bmp	C3.bmp	D3.bmp
A4.bmp	B4.bmp	C4.bmp	D4.bmp
A5.bmp	B5.bmp	C5.bmp	D5.bmp
A6.bmp	B6.bmp	C6.bmp	D6.bmp
A7.bmp	B7.bmp	C7.bmp	D7.bmp
A8.bmp	B8.bmp	C8.bmp	D8.bmp
A9.bmp	B9.bmp	C9.bmp	D9.bmp
A10.bmp	B10.bmp	C10.bmp	D10.bmp

B1. Contoh Karakter Font Pada Library			
			
E1.bmp	F1.bmp	G1.bmp	H1.bmp
			
E2.bmp	F2.bmp	G2.bmp	H2.bmp
			
E3.bmp	F3.bmp	G3.bmp	H3.bmp
			
E4.bmp	F4.bmp	G4.bmp	H4.bmp
			
E5.bmp	F5.bmp	G5.bmp	H5.bmp
			
E6.bmp	F6.bmp	G6.bmp	H6.bmp
			
E7.bmp	F7.bmp	G7.bmp	H7.bmp
			
E8.bmp	F8.bmp	G8.bmp	H8.bmp
			
E9.bmp	F9.bmp	G9.bmp	H9.bmp
			
E10.bmp	F10.bmp	G10.bmp	H10.bmp

B2. Contoh Karakter Yang Akan Diuji			
KE1.bmp	KF1.bmp	KG1.bmp	KH1.bmp
KE2.bmp	KF2.bmp	KG2.bmp	KH2.bmp
KE3.bmp	KF3.bmp	KG3.bmp	KH3.bmp
KE4.bmp	KF4.bmp	KG4.bmp	KH4.bmp
KE5.bmp	KF5.bmp	KG5.bmp	KH5.bmp
KE6.bmp	KF6.bmp	KG6.bmp	KH6.bmp
KE7.bmp	KF7.bmp	KG7.bmp	KH7.bmp
KE8.bmp	KF8.bmp	KG8.bmp	KH8.bmp
KE9.bmp	KF9.bmp	KG9.bmp	KH9.bmp
KE10.bmp	KF10.bmp	KG10.bmp	KD10.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
E1.bmp	F1.bmp	G1.bmp	H1.bmp
E2.bmp	F2.bmp	G2.bmp	H2.bmp
E3.bmp	F3.bmp	G3.bmp	H3.bmp
E4.bmp	F4.bmp	G4.bmp	H4.bmp
E5.bmp	F5.bmp	G5.bmp	H5.bmp
E6.bmp	F6.bmp	G6.bmp	H6.bmp
E7.bmp	F7.bmp	G7.bmp	H7.bmp
E8.bmp	F8.bmp	G8.bmp	H8.bmp
E9.bmp	F9.bmp	G9.bmp	H9.bmp
E10.bmp	F10.bmp	G10.bmp	H10.bmp

B1. Contoh Karakter Font Pada Library			
			
I1.bmp	J1.bmp	K1.bmp	L1.bmp
I2.bmp	J2.bmp	K2.bmp	L2.bmp
			
I3.bmp	J3.bmp	K3.bmp	L3.bmp
			
I4.bmp	J4.bmp	K4.bmp	L4.bmp
I5.bmp	J5.bmp	K5.bmp	L5.bmp
			
I6.bmp	J6.bmp	K6.bmp	L6.bmp
			
I7.bmp	J7.bmp	K7.bmp	L7.bmp
			
I8.bmp	J8.bmp	K8.bmp	L8.bmp
			
I9.bmp	J9.bmp	K9.bmp	L9.bmp
I10.bmp	J10.bmp	K10.bmp	L10.bmp

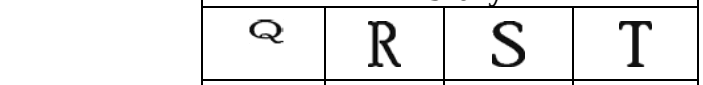
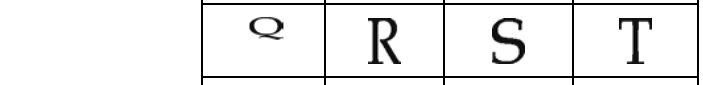
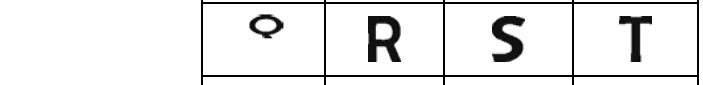
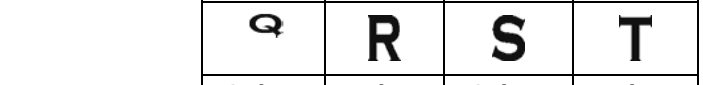
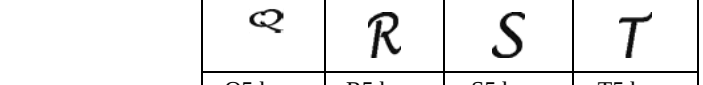
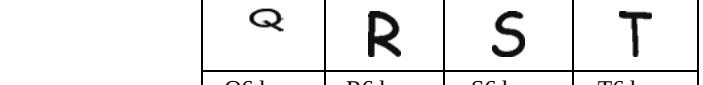
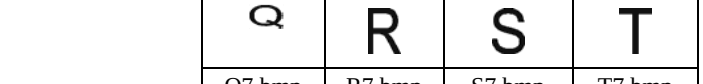
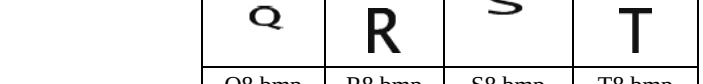
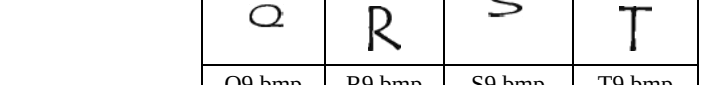
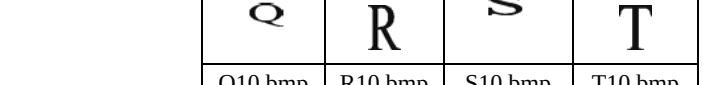
B2. Contoh Karakter Yang Akan Diuji			
KI1.bmp	KJ1.bmp	KK1.bmp	KL1.bmp
KI2.bmp	KJ2.bmp	KK2.bmp	KL2.bmp
KI3.bmp	KJ3.bmp	KK3.bmp	KL3.bmp
KI4.bmp	KJ4.bmp	KK4.bmp	KL4.bmp
KI5.bmp	KJ5.bmp	KK5.bmp	KL5.bmp
KI6.bmp	KJ6.bmp	KK6.bmp	KL6.bmp
KI7.bmp	KJ7.bmp	KK7.bmp	KL7.bmp
KI8.bmp	KJ8.bmp	KK8.bmp	KL8.bmp
KI9.bmp	KJ9.bmp	KK9.bmp	KL9.bmp
KI10.bmp	KJ10.bmp	KK10.bmp	KL10.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
I1.bmp	J1.bmp	K1.bmp	L1.bmp
I2.bmp	J2.bmp	K2.bmp	L2.bmp
I3.bmp	J3.bmp	K3.bmp	L3.bmp
I4.bmp	J4.bmp	K4.bmp	L4.bmp
I5.bmp	J5.bmp	K5.bmp	L5.bmp
I6.bmp	J6.bmp	K6.bmp	L6.bmp
I7.bmp	J7.bmp	K7.bmp	L7.bmp
I8.bmp	J8.bmp	K8.bmp	L8.bmp
I9.bmp	J9.bmp	K9.bmp	L9.bmp
I10.bmp	J10.bmp	K10.bmp	L10.bmp

B1. Contoh Karakter Font Pada Library			
			
M1.bmp	N1.bmp	O1.bmp	P1.bmp
			
M2.bmp	N2.bmp	O2.bmp	P2.bmp
			
M3.bmp	N3.bmp	O3.bmp	P3.bmp
			
M4.bmp	N4.bmp	O4.bmp	P4.bmp
			
M5.bmp	N5.bmp	O5.bmp	P5.bmp
			
M6.bmp	N6.bmp	O6.bmp	P6.bmp
			
M7.bmp	N7.bmp	O7.bmp	P7.bmp
			
M8.bmp	N8.bmp	O8.bmp	P8.bmp
			
M9.bmp	N9.bmp	O9.bmp	P9.bmp
			
M10.bmp	N10.bmp	O10.bmp	P10.bmp

B2. Contoh Karakter Yang Akan Diuji			
KM1.bmp	KN1.bmp	KO1.bmp	KP1.bmp
KM2.bmp	KN2.bmp	KO2.bmp	KP2.bmp
KM3.bmp	KN3.bmp	KO3.bmp	KP3.bmp
KM4.bmp	KN4.bmp	KO4.bmp	KP4.bmp
KM5.bmp	KN5.bmp	KO5.bmp	KP5.bmp
KM6.bmp	KN6.bmp	KO6.bmp	KP6.bmp
KM7.bmp	KN7.bmp	KO7.bmp	KP7.bmp
KM8.bmp	KN8.bmp	KO8.bmp	KP8.bmp
KM9.bmp	KN9.bmp	KO9.bmp	KP9.bmp
KM10.bmp	KN10.bmp	KO10.bmp	KP10.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
M1.bmp	N1.bmp	O1.bmp	P1.bmp
M2.bmp	N2.bmp	O2.bmp	P2.bmp
M3.bmp	N3.bmp	O3.bmp	P3.bmp
M4.bmp	N4.bmp	O4.bmp	P4.bmp
M5.bmp	N5.bmp	O5.bmp	P5.bmp
M6.bmp	N6.bmp	O6.bmp	P6.bmp
M7.bmp	N7.bmp	O7.bmp	P7.bmp
M8.bmp	N8.bmp	O8.bmp	P8.bmp
M9.bmp	N9.bmp	O9.bmp	P9.bmp
M10.bmp	N10.bmp	O10.bmp	P10.bmp

B1. Contoh Karakter Font Pada Library			
			
Q1.bmp	R1.bmp	S1.bmp	T1.bmp
			
Q2.bmp	R2.bmp	S2.bmp	T2.bmp
			
Q3.bmp	R3.bmp	S3.bmp	T3.bmp
			
Q4.bmp	R4.bmp	S4.bmp	T4.bmp
			
Q5.bmp	R5.bmp	S5.bmp	T5.bmp
			
Q6.bmp	R6.bmp	S6.bmp	T6.bmp
			
Q7.bmp	R7.bmp	S7.bmp	T7.bmp
			
Q8.bmp	R8.bmp	S8.bmp	T8.bmp
			
Q9.bmp	R9.bmp	S9.bmp	T9.bmp
			
Q10.bmp	R10.bmp	S10.bmp	T10.bmp

B2. Contoh Karakter Yang Akan Diuji			
KQ1.bmp	KR1.bmp	KS1.bmp	KT1.bmp
KQ2.bmp	KR2.bmp	KS2.bmp	KT2.bmp
KQ3.bmp	KR3.bmp	KS3.bmp	KT3.bmp
KQ4.bmp	KR4.bmp	KS4.bmp	KT4.bmp
KQ5.bmp	KR5.bmp	KS5.bmp	KT5.bmp
Q6.bmp	KR6.bmp	KS6.bmp	KT6.bmp
KQ7.bmp	KR7.bmp	KS7.bmp	KT7.bmp
KQ8.bmp	KR8.bmp	KS8.bmp	KT8.bmp
KQ9.bmp	KR9.bmp	KS9.bmp	KT9.bmp
KQ10.bmp	KR10.bmp	KS10.bmp	KT10.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
Q1.bmp	R1.bmp	S1.bmp	T1.bmp
Q2.bmp	R2.bmp	S2.bmp	T2.bmp
Q3.bmp	R3.bmp	S3.bmp	T3.bmp
Q4.bmp	R4.bmp	S4.bmp	T4.bmp
Q5.bmp	R5.bmp	S5.bmp	T5.bmp
Q6.bmp	R6.bmp	S6.bmp	T6.bmp
Q7.bmp	R7.bmp	S7.bmp	T7.bmp
Q8.bmp	R8.bmp	S8.bmp	T8.bmp
Q9.bmp	R9.bmp	S9.bmp	T9.bmp
Q10.bmp	R10.bmp	S10.bmp	T10.bmp

B1. Contoh Karakter Font Pada Library			
			
U1.bmp	V1.bmp	W1.bmp	X1.bmp
			
U2.bmp	V2.bmp	W2.bmp	X2.bmp
			
U3.bmp	V3.bmp	W3.bmp	X3.bmp
			
U4.bmp	V4.bmp	W4.bmp	X4.bmp
			
U5.bmp	V5.bmp	W5.bmp	X5.bmp
			
U6.bmp	V6.bmp	W6.bmp	X6.bmp
			
U7.bmp	V7.bmp	W7.bmp	X7.bmp
			
U8.bmp	V8.bmp	W8.bmp	X8.bmp
			
U9.bmp	V9.bmp	W9.bmp	X9.bmp
			
U10.bmp	V10.bmp	W10.bmp	X10.bmp

B2. Contoh Karakter Yang Akan Diuji			
KU1.bmp	KV1.bmp	KW1.bmp	KX1.bmp
KU2.bmp	KV2.bmp	KW2.bmp	KX2.bmp
KU3.bmp	KV3.bmp	KW3.bmp	KX3.bmp
KU4.bmp	KV4.bmp	KW4.bmp	KX4.bmp
KU5.bmp	KV5.bmp	KW5.bmp	X5.bmp
KU6.bmp	KV6.bmp	KW6.bmp	KX6.bmp
KU7.bmp	KF7.bmp	KW7.bmp	KX7.bmp
KU8.bmp	KV8.bmp	KW8.bmp	KX8.bmp
KU9.bmp	KV9.bmp	KW9.bmp	KX9.bmp
KU10.bmp	KV10.bmp	KW10.bmp	KX10.bmp

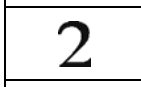
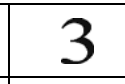
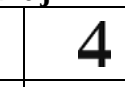
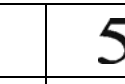
B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
U1.bmp	V1.bmp	W1.bmp	X1.bmp
U2.bmp	V2.bmp	W2.bmp	X2.bmp
U3.bmp	V3.bmp	W3.bmp	X3.bmp
U4.bmp	V4.bmp	W4.bmp	X4.bmp
U5.bmp	V5.bmp	W5.bmp	X5.bmp
U6.bmp	V6.bmp	W6.bmp	X6.bmp
U7.bmp	V7.bmp	W7.bmp	X7.bmp
U8.bmp	V8.bmp	W8.bmp	X8.bmp
U9.bmp	V9.bmp	W9.bmp	X9.bmp
U10.bmp	V10.bmp	W10.bmp	X10.bmp

B1. Contoh Karakter Font Pada Library			
		-	-
Y1.bmp	Z1.bmp		
		-	-
Y2.bmp	Z2.bmp		
		-	-
Y3.bmp	Z3.bmp		
		-	-
Y4.bmp	Z4.bmp		
		-	-
Y5.bmp	Z5.bmp		
		-	-
Y6.bmp	Z6.bmp		
		-	-
Y7.bmp	Z7.bmp		
		-	-
Y8.bmp	Z8.bmp		
		-	-
Y9.bmp	Z9.bmp		
		-	-
Y10.bmp	Z10.bmp		

B2. Contoh Karakter Yang Akan Diuji			
			
KY1.bmp	KZ1.bmp	K01.bmp	K11.bmp
			
KY2.bmp	KZ2.bmp	K02.bmp	K12.bmp
			
KY3.bmp	KZ3.bmp	K03.bmp	K13.bmp
			
KY4.bmp	KZ4.bmp	K04.bmp	K14.bmp
			
KY5.bmp	KZ5.bmp	K05.bmp	K15.bmp
			
KY6.bmp	KZ6.bmp	K06.bmp	K16.bmp
			
KY7.bmp	KZ7.bmp	K07.bmp	K17.bmp
			
KY8.bmp	KZ8.bmp	K08.bmp	K18.bmp
			
KY9.bmp	KZ9.bmp	K09.bmp	K19.bmp
			
KY10.bmp	KZ10.bmp	K010.bmp	K110.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
			
Y1.bmp	Z1.bmp	Z101.bmp	Z111.bmp
			
Y2.bmp	Z2.bmp	Z102.bmp	Z112.bmp
			
Y3.bmp	Z3.bmp	Z103.bmp	Z113.bmp
			
Y4.bmp	Z4.bmp	Z104.bmp	Z114.bmp
			
Y5.bmp	Z5.bmp	Z105.bmp	Z115.bmp
			
Y6.bmp	Z6.bmp	Z106.bmp	Z116.bmp
			
Y7.bmp	Z7.bmp	Z107.bmp	Z117.bmp
			
Y8.bmp	Z8.bmp	Z108.bmp	Z118.bmp
			
Y9.bmp	Z9.bmp	Z109.bmp	Z119.bmp
			
Y10.bmp	Z10.bmp	Z1010.bmp	Z1110.bmp

B1. Contoh Karakter Font Pada Library			
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

B2. Contoh Karakter Yang Akan Diuji			
			
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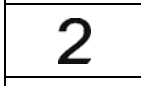	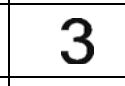	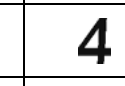	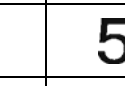
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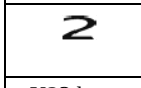	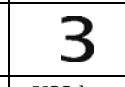	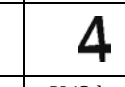	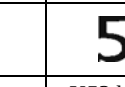
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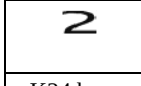	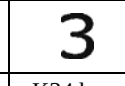	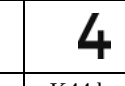	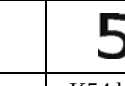
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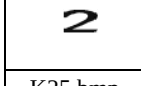	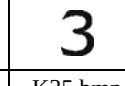	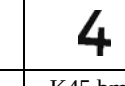	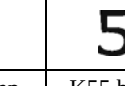
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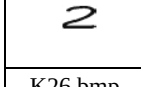	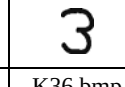	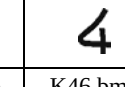	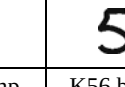
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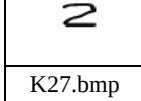	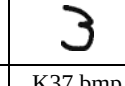	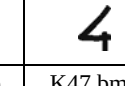	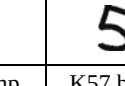
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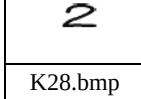	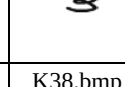	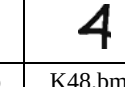	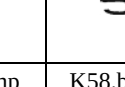
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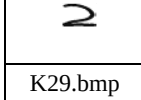	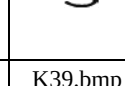	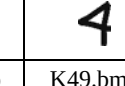	
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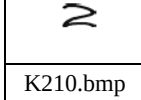	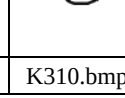	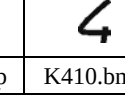	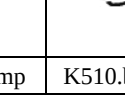
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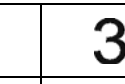			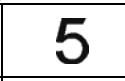
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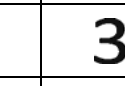		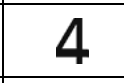	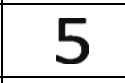
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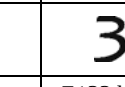			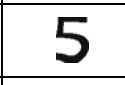
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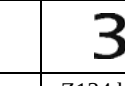			
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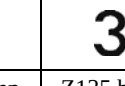		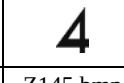	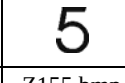
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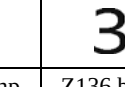		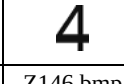	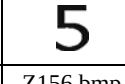
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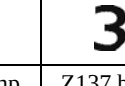		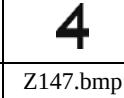	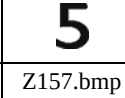
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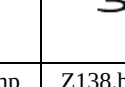		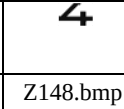	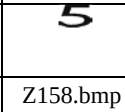
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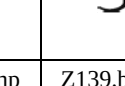		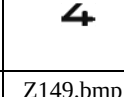	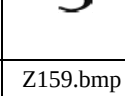
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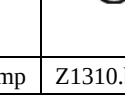		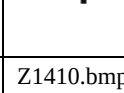	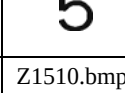
Z1210.bmp	Z1310.bmp	Z1410.bmp	Z1510.bmp

B1. Contoh Karakter Font Pada Library			
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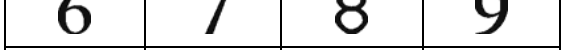			
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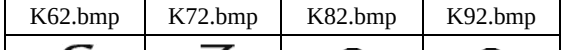
K62.bmp	K72.bmp	K82.bmp	K92.bmp
			
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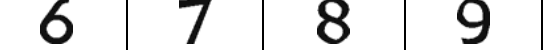
K64.bmp	K74.bmp	K84.bmp	K94.bmp
			
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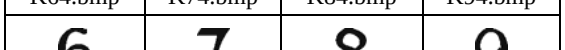			
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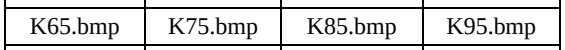
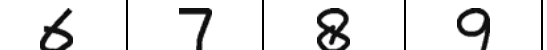
			
K67.bmp	K77.bmp	K87.bmp	K97.bmp
			
K68.bmp	K78.bmp	K88.bmp	K98.bmp
			
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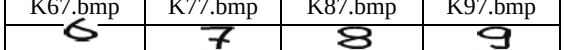
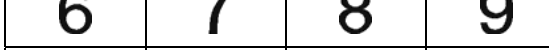
			
K610.bmp	K710.bmp	K810.bmp	K910.bmp

B3. Contoh Karakter Yang Dibentuk Sendiri Pada Library			
			
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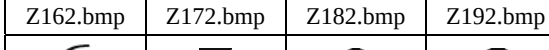
Z162.bmp	Z172.bmp	Z182.bmp	Z192.bmp
			
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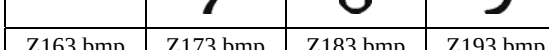			
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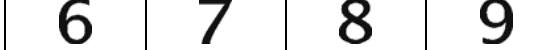			
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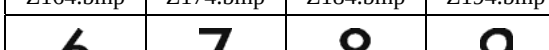			
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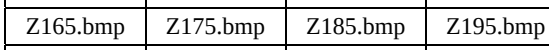			
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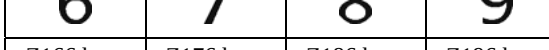			
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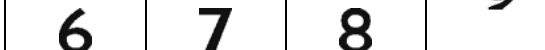
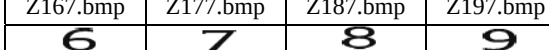
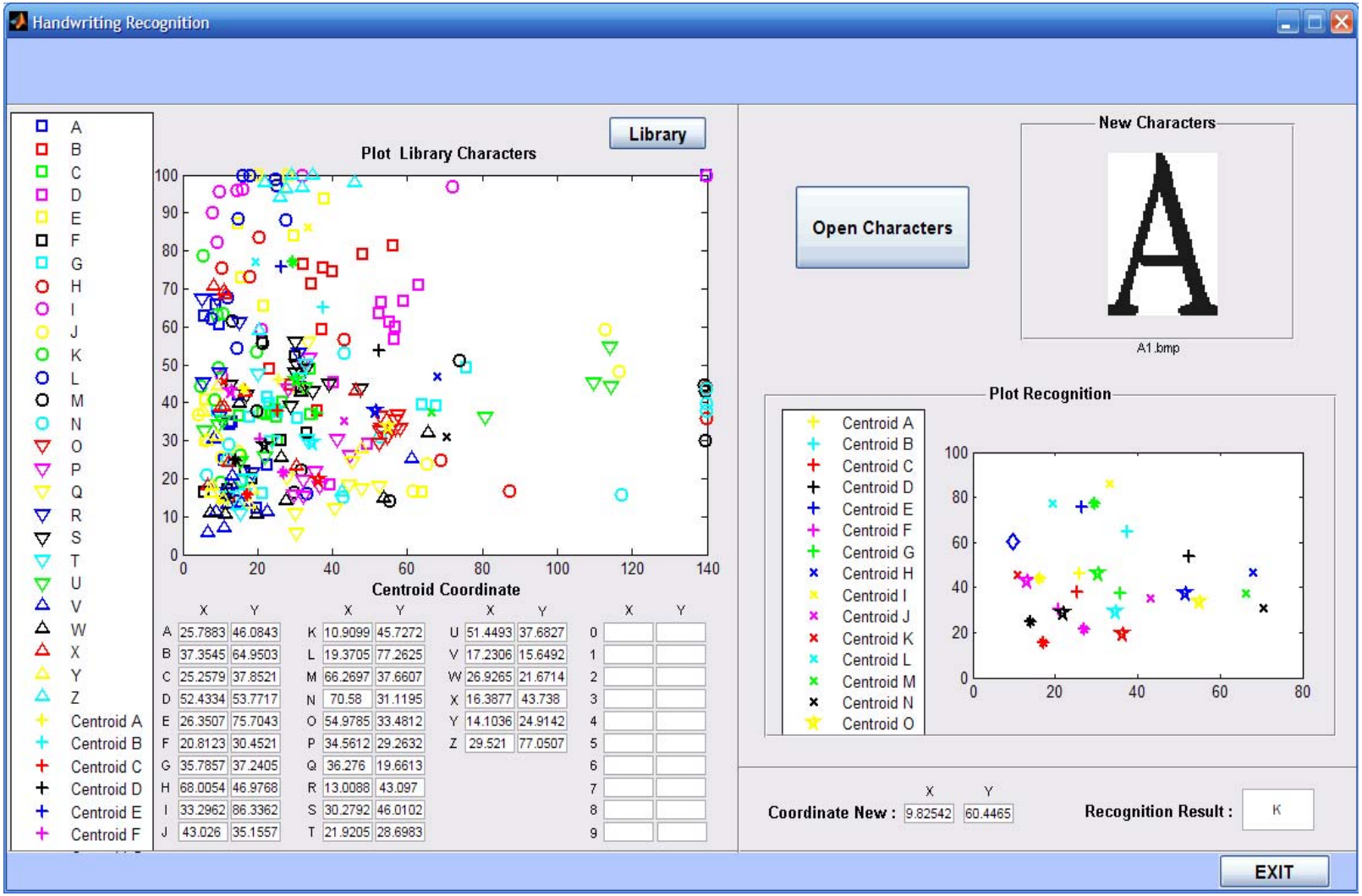
			
Z169.bmp	Z179.bmp	Z189.bmp	Z199.bmp
			
Z1610.bmp	Z1710.bmp	Z1810.bmp	Z1910.bmp

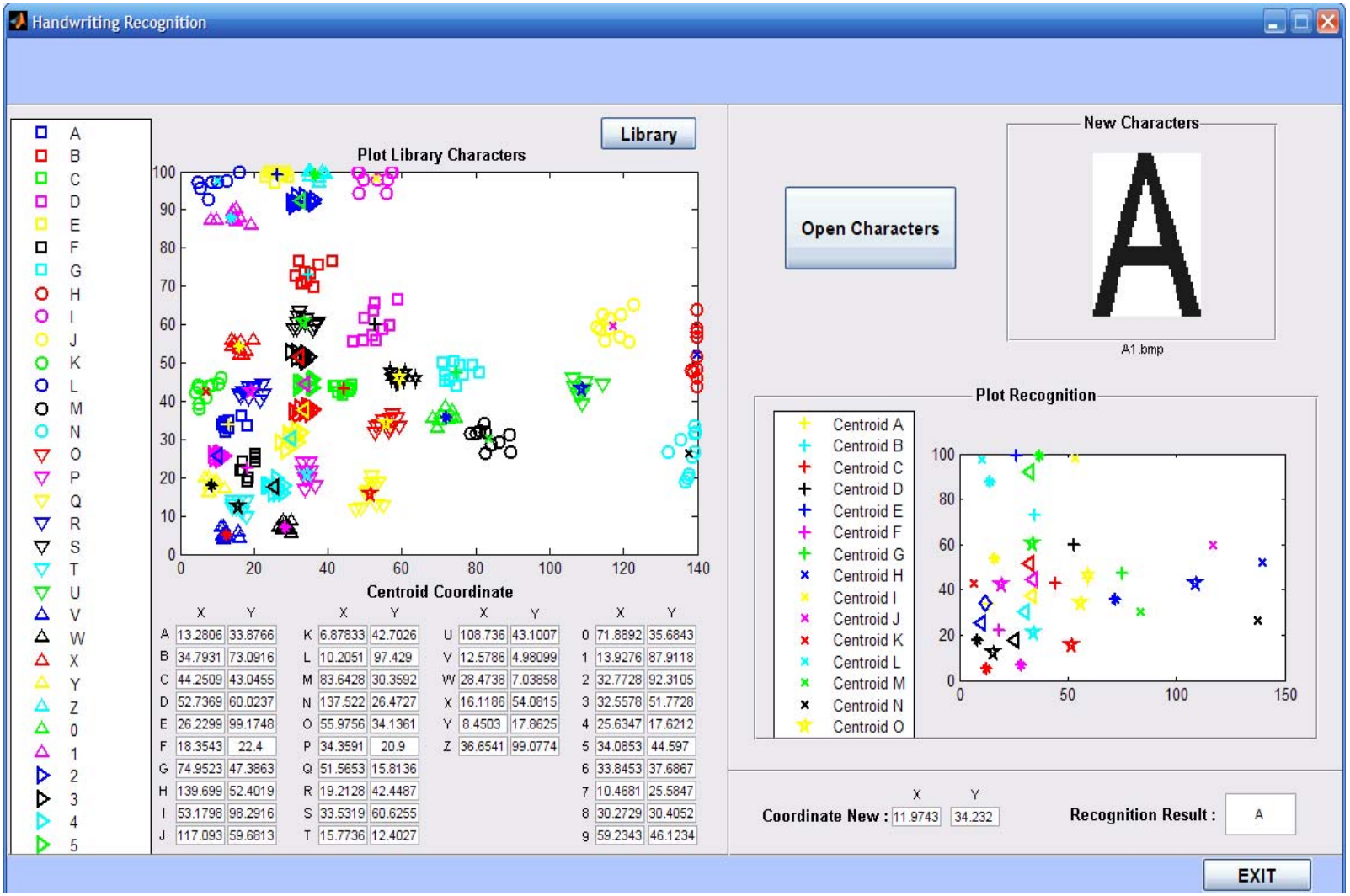
LAMPIRAN C

TAMPILAN PENGUJIAN PERANGKAT LUNAK DAN KETERANGAN SIMBOL-SIMBOL

Tampilan Pengujian Perangkat Lunak Dengan Bentuk Karakter *Font*



Tampilan Pengujian Perangkat Lunak Dengan Bentuk Karakter Yang Dibentuk Sendiri



Keterangan Simbol-Simbol Yang Di Plot