

ABSTRAK

Inovasi baru dalam game komputer dibutuhkan setiap saat. Aplikasi ini, yang merupakan gabungan dari tiga jenis game, yaitu board, card dan turn-based strategy, dibuat untuk menjawab tantangan tersebut. Fitur-fitur utama game ini meliputi jumlah pemain 1-4 orang, arsitektur network pure peer-to-peer, tampilan dengan GDI+, pembacaan data dari file teks. Pengembangan di masa depan dapat dilakukan dengan menambah fitur memilih peta, perluasan jaringan dengan memanfaatkan internet, dan penambahan rincian game seperti avatar, item, dan ability. Aplikasi ini dibuat dengan bahasa pemrograman Visual C# .NET 2005, dengan teknologi seperti pure p2p remoting, GDI+, ownerDraw, dan file input/output. Teori-teori yang dipakai dalam proyek ini meliputi Algoritma dan Pemrograman, Rekayasa Perangkat Lunak, Teori dan Desain Berorientasi Objek, Jaringan Komputer, dan Pemrograman Game. Whitebox Testing menggunakan program testing eksternal Nunit versi 2.4.3. Aplikasi ini diharapkan menambah alternatif dunia game dan menambah wawasan baru dalam bidang studi IT.

ABSTRACT

New innovation in computer games is needed all the time. This application, that is made from a merge of three genres, such as board, card, and turn-based strategy, created to answer the challenge. Main features in this game are 1-4 supported players, pure peer-to-peer network architecture, GDI+ display, and text-based file data reading.

Improvements in the future can be done by adding map selection feature, broading the network using internet, and the expansion of the game's element such as avatars, items, and abilities. This application is built with Visual C# .NET programming language, with technologies such as pure p2p remoting, GDI+, ownerDraw, and file input/output.

Theories that referenced in this project includes Programming and Algorithms, Software Engineering, Object Oriented Theory and Design, Networking, and Game Programming.

The whitebox testing used an external testing program, Nunit version 2.4.3. Hopefully this application can bring alternatives in gaming world and enrich the knowledge in IT.

DAFTAR ISI

KATA PENGANTAR.....	i
ABSTRAK.....	iv
ABSTRACT.....	v
DAFTAR ISI.....	vi
DAFTAR GAMBAR.....	xi
DAFTAR TABEL	xiv
DAFTAR LAMPIRAN	xv
BAB I PENDAHULUAN	1
1.1. LATAR BELAKANG.....	1
1.2. RUMUSAN MASALAH.....	1
1.3. TUJUAN	2
1.4. BATASAN MASALAH.....	2
1.5. SISTEMATIKA PEMBAHASAN.....	3
1.6. TIME SCHEDULE	4
BAB II DASAR TEORI	5
2.1. ATURAN PERMAINAN BLOODRUSH.....	5
2.2. TEORI PENUNJANG.....	11
2.3. METODE	18
2.4. PROTOKOL KOMUNIKASI	19
BAB III ANALISA DAN PEMODELAN.....	23
3.1. LATAR BELAKANG CERITA	23
3.2. RINCIAN GAME.....	24
3.2.1. DAFTAR AVATAR	24
3.2.2. DAFTAR LOKASI	34
3.2.3. DAFTAR MUSUH.....	36
3.2.4. DAFTAR ITEM	48
3.3. ARSITEKTUR GAME	52
3.3.1. ARSITEKTUR JARINGAN.....	52
3.3.2. USE CASE	53
3.3.2.1. SEBELUM PERMAINAN.....	53

3.3.2.2.	DALAM PERMAINAN	55
3.3.3.	ACTIVITY DIAGRAM	56
3.3.3.1.	SEBELUM PERMAINAN.....	56
3.3.3.1.1.	MASUKKAN NAMA.....	56
3.3.3.1.2.	KIRIM PESAN	57
3.3.3.1.3.	PILIH AVATAR.....	57
3.3.3.1.4.	UNDANG PEMAIN	57
3.3.3.1.5.	BUAT GAME	57
3.3.3.1.6.	MULAI GAME	58
3.3.3.1.7.	BATALKAN GAME.....	58
3.3.3.1.8.	KELUAR DARI APLIKASI.....	58
3.3.3.2.	DALAM PERMAINAN	59
3.3.3.2.1.	KIRIM PESAN	59
3.3.3.2.2.	JALAN	59
3.3.3.2.3.	AMBIL KARTU.....	59
3.3.3.2.4.	LIHAT KARTU	59
3.3.3.2.5.	GUNAKAN KARTU DAN ATAU ABILITY	60
3.3.3.2.6.	GERAKKAN PETA	60
3.3.3.2.7.	BUANG KARTU	61
3.3.3.2.8.	KELUAR DARI APLIKASI.....	61
3.3.4.	CLASS DIAGRAM.....	62
3.3.4.1.	DATA.....	62
3.3.4.2.	REMOTE OBJECT.....	63
3.3.4.3.	ITEM & ABILITY.....	64
3.3.4.4.	COMBAT.....	65
3.3.5.	SEQUENCE DIAGRAM	66
3.3.5.1.	SEBELUM PERMAINAN.....	66
3.3.5.1.1.	MASUKKAN NAMA.....	66
3.3.5.1.2.	KIRIM PESAN	67
3.3.5.1.3.	PILIH AVATAR.....	67
3.3.5.1.4.	UNDANG PEMAIN	68
3.3.5.1.5.	BUAT GAME	69
3.3.5.1.6.	MULAI GAME	69

3.3.5.1.7. BATALKAN GAME	70
3.3.5.1.8. KELUAR DARI APLIKASI.....	70
3.3.5.2. DALAM PERMAINAN	71
3.3.5.2.1. KIRIM PESAN	71
3.3.5.2.2. JALAN	71
3.3.5.2.3. AMBIL KARTU.....	72
3.3.5.2.4. LIHAT KARTU	73
3.3.5.2.5. GUNAKAN KARTU DAN ATAU ABILITY	73
3.3.5.2.6. GERAKKAN PETA	74
3.3.5.2.7. BUANG KARTU	75
3.3.5.2.8. KELUAR DARI APLIKASI.....	75
3.4. STORYBOARD	76
3.4.1. UPKEEP PHASE	76
3.4.2. MOVE PHASE.....	77
3.4.3. PRE-COMBAT PHASE.....	78
3.4.4. COMBAT PHASE	81
3.4.5. DISCARD PHASE.....	83
3.4.6. END PHASE	84
3.5. CREATIVE STRATEGY	85
3.5.1. MENU UTAMA.....	85
3.5.2. RUANG TUNGGU.....	86
3.5.3. PILIH AVATAR	88
3.5.4. TAMPILAN PERMAINAN	89
BAB IV PERANCANGAN DAN IMPLEMENTASI	91
4.1. DATA	91
4.1.1. CONSTRUCTOR.....	91
4.1.2. READ DATA.....	92
4.1.3. INPUT DATA	93
4.1.3.1. INPUT HEROES DATA.....	93
4.1.3.2. INPUT CREEPS DATA.....	94
4.1.3.3. INPUT LOCATIONS DATA.....	95
4.1.3.4. INPUT ITEMS DATA	96
4.1.3.5. INPUT ABILITIES DATA.....	96

4.2. COMBAT.....	97
4.2.1. FIGHT.....	99
4.2.2. ATTACKED	105
4.2.3. ABILITY CHECKING.....	109
4.2.4. TRAIT CHECKING	116
4.3. REMOTING	118
4.3.1. REMOTE OBJECT	118
4.3.2. EVENTS	120
4.4. MAP & SPRITE	121
4.4.1. ONPAINT BACKGROUND.....	121
4.4.2. COMBINE BACKGROUND AND SPRITE	122
4.4.3. CHECK DIRECTION	122
4.4.4. MOVEMENT ARRAY.....	123
4.4.5. MOVE AVATAR.....	124
4.4.6. SEARCH LAST RESURRECTION POINT.....	125
4.4.7. DRAG MAP POSITION.....	126
4.4.8. TRANSPARENT LISTBOX	129
4.5. SORTING HAND	132
BAB V PENGUJIAN.....	135
5.1. TESTING DATA.....	135
5.1.1. READ DATA.....	135
5.1.2. INPUT HEROES DATA.....	136
5.1.3. INPUT CREEPS DATA.....	138
5.1.4. INPUT LOCATIONS DATA.....	139
5.1.5. INPUT ITEMS DATA	140
5.1.6. INPUT ABILITIES DATA.....	142
5.2. TESTING COMBAT	144
5.2.1. FIGHT.....	144
5.2.2. ATTACKED	146
5.2.3. ABILITY CHECKING.....	147
5.2.4. TRAIT CHECKING	149
5.3. TESTING MAP & SPRITE.....	151
5.3.1. CHECK DIRECTION	151

5.3.2. MOVEMENT ARRAY.....	152
5.3.3. SEARCH LAST RESURRECTION POINT	154
5.4. TESTING SORT HAND.....	155
BAB VI KESIMPULAN DAN SARAN	158
6.1. KESIMPULAN	158
6.2. SARAN	158
DAFTAR PUSTAKA	xvi
LAMPIRAN.....	xvii

DAFTAR GAMBAR

Gambar II.1 Pilihan avatar.....	6
Gambar II.2 Arsitektur Server-client	11
Gambar II.3 Arsitektur pure peer-to-peer	12
Gambar II.4 <i>Listbox</i> transparan.....	13
Gambar II.5 Pergerakan peta menggunakan mouse	14
Gambar II.6 Pergerakan sprite di peta	15
Gambar II.7 Kursor beranimasi	16
Gambar II.8 Data pada <i>file</i> teks.....	17
Gambar II.9 <i>MarshalByRefObject</i> pada <i>server</i> dan <i>client</i>	21
Gambar II.10 Proses pengiriman data	22
Gambar III.1 Arsitektur Jaringan	52
Gambar III.2 <i>Use-case</i> sebelum permainan	53
Gambar III.3 <i>Use-case</i> dalam permainan.....	55
Gambar III.4 <i>Activity Diagram</i> Masukkan nama	56
Gambar III.5 <i>Activity Diagram</i> Kirim pesan (di luar <i>game</i>)	57
Gambar III.6 <i>Activity Diagram</i> Pilih <i>avatar</i>	57
Gambar III.7 <i>Activity Diagram</i> Undang pemain	57
Gambar III.8 <i>Activity Diagram</i> Buat game	57
Gambar III.9 <i>Activity Diagram</i> Mulai game.....	58
Gambar III.10 <i>Activity Diagram</i> Batalkan game.....	58
Gambar III.11 <i>Activity Diagram</i> Keluar dari aplikasi	58
Gambar III.12 <i>Activity Diagram</i> Kirim pesan (dalam <i>game</i>)	59
Gambar III.13 <i>Activity Diagram</i> Jalan.....	59
Gambar III.14 <i>Activity Diagram</i> Ambil Kartu.....	59
Gambar III.15 <i>Activity Diagram</i> Lihat kartu	59
Gambar III.16 <i>Activity Diagram</i> Gunakan kartu dan atau ability	60
Gambar III.17 <i>Acitivity Diagram</i> Gerakkan peta	60
Gambar III.18 <i>Activity Diagram</i> Buang kartu	61
Gambar III.19 <i>Activity Diagram</i> Keluar dari aplikasi	61
Gambar III.20 <i>Class Diagram</i> Data	62
Gambar III.21 <i>Class Diagram</i> <i>Remote Object</i>	63
Gambar III.22 <i>Class Diagram</i> <i>Item</i>	64
Gambar III.23 <i>Class Diagram</i> <i>Ability</i>	64
Gambar III.24 <i>Class Diagram</i> <i>Combat</i>	65
Gambar III.25 <i>Sequence Diagram</i> Masukkan nama.....	66
Gambar III.26 <i>Sequence Diagram</i> Kirim pesan (sebelum permainan).....	67
Gambar III.27 <i>Sequence Diagram</i> Pilih <i>Avatar</i>	67
Gambar III.28 <i>Sequence Diagram</i> Undang pemain.....	68
Gambar III.29 <i>Sequence Diagram</i> Buat <i>Game</i>	69
Gambar III.30 <i>Sequence Diagram</i> Mulai <i>game</i>	69

Gambar III.31 Sequence Diagram Batalkan Game	70
Gambar III.32 Sequence Diagram Keluar dari aplikasi	70
Gambar III.33 Sequence Diagram Kirim pesan (dalam permainan).....	71
Gambar III.34 Sequence Diagram Jalan	71
Gambar III.35 Sequence Diagram Ambil kartu.....	72
Gambar III.36 Sequence Diagram Lihat kartu	73
Gambar III.37 Sequence Diagram Gunakan kartu dan atau ability.....	73
Gambar III.38 Sequence Diagram Gerakkan peta.....	74
Gambar III.39 Sequence Diagram Buang kartu.....	75
Gambar III.40 Sequence Diagram Keluar dari aplikasi	75
Gambar III.41 Storyboard Upkeep Phase 1	76
Gambar III.42 Storyboard Upkeep Phase 2	76
Gambar III.43 Storyboard Move Phase 1	77
Gambar III.44 Storyboard Move Phase 2	77
Gambar III.45 Storyboard Pre-combat Phase 1.....	78
Gambar III.46 Storyboard Pre-combat Phase 2.....	78
Gambar III.47 Storyboard Pre-combat Phase 3.....	79
Gambar III.48 Storyboard Pre-combat Phase 4.....	79
Gambar III.49 Storyboard Pre-combat Phase 5.....	80
Gambar III.50 Storyboard Pre-combat Phase 6.....	80
Gambar III.51 Storyboard Pre-combat Phase 7.....	81
Gambar III.52 Storyboard Combat Phase 1	81
Gambar III.53 Storyboard Combat Phase 2	82
Gambar III.54 Storyboard Combat Phase 3	82
Gambar III.55 Storyboard Discard Phase 1	83
Gambar III.56 Storyboard Discard Phase 2	83
Gambar III.57 Storyboard Discard Phase 3	84
Gambar III.58 Storyboard End Phase	84
Gambar III.59 Screenshot Menu utama	85
Gambar III.60 Screenshot Ruang tunggu.....	86
Gambar III.61 Screenshot Pilih avatar.....	88
Gambar III.62 Screenshot Tampilan permainan.....	89
Gambar IV.1 Flowchart Data.....	91
Gambar IV.2 Flowchart Combat.....	98
Gambar IV.3 Flowchart RemoteObject & Events	118
Gambar IV.4 Flowchart Map and Sprite Drawing	121
Gambar IV.5 Flowchart Search Last Res Point	125
Gambar IV.6 Flowchart Drag Map Position	126
Gambar IV.7 Flowchart Transparent Listbox	129
Gambar IV.8 Flowchart Sorting Hand	132
Gambar V.1 Testing Read Data Test Case 2.....	136
Gambar V.2 Testing Read Data Test Case 3.....	136
Gambar V.3 Testing Input Hero Data Test Case 2.....	137

Gambar V.4 Testing Input Hero Data Test Case 3.....	137
Gambar V.5 Testing Input Creep Data Test Case 2	138
Gambar V.6 Testing Input Creep Data Test Case 3	139
Gambar V.7 Testing Input Location Data Test Case 2.....	140
Gambar V.8 Testing Input Location Data Test Case 3.....	140
Gambar V.9 Testing Input Item Data Test Case 2	141
Gambar V.10 Testing Input Item Data Test Case 3	142
Gambar V.11 Testing Input Ability Data Test Case 2	143
Gambar V.12 Testing Input Ability Data Test Case 3	143
Gambar V.13 Testing Fight Test Case 2	145
Gambar V.14 Testing Fight Test Case 3	145
Gambar V.15 Testing Attacked Test Case 2	147
Gambar V.16 Testing Attacked Test Case 3	147
Gambar V.17 Testing Ability Check Test Case 2	149
Gambar V.18 Testing Ability Check Test Case 3	149
Gambar V.19 Testing Trait Check Test Case 2.....	150
Gambar V.20 Testing Trait Check Test Case 3.....	151
Gambar V.21 Testing Check Direction Test Case 2.....	152
Gambar V.22 Testing Check Direction Test Case 3.....	152
Gambar V.23 Testing Movement Array Test Case 2	153
Gambar V.24 Testing Movement Array Test Case 3	154
Gambar V.25 Testing Search Last Res Point Test Case 2	155
Gambar V.26 Testing Search Last Res Point Test Case 3	155
Gambar V.27 Testing Sort Cards Test Case 2	157
Gambar V.28 Testing Sort Cards Test Case 3	157

DAFTAR TABEL

Tabel I.1 <i>Time Schedule</i>	4
Tabel III.1 Daftar Avatar.....	24
Tabel III.2 Daftar Lokasi.....	34
Tabel III.3 Daftar Musuh	36
Tabel III.4 Daftar <i>Item</i>	48
Tabel V.1 <i>Testing ReadData</i>	135
Tabel V.2 <i>Testing Input Data Hero</i>	137
Tabel V.3 <i>Testing Input Data Creep</i>	138
Tabel V.4 <i>Testing Input Locations Data</i>	139
Tabel V.5 <i>Testing Input Items Data</i>	141
Tabel V.6 <i>Testing Input Abilities Data</i>	142
Tabel V.7 <i>Testing Fight</i>	144
Tabel V.8 <i>Testing Fight</i>	146
Tabel V.9 <i>Testing Ability Check</i>	148
Tabel V.10 <i>Testing Trait Check</i>	150
Tabel V.11 <i>Testing Check Direction</i>	151
Tabel V.12 <i>Testing Movement Array</i>	153
Tabel V.13 <i>Testing Search Last Resurrection Point</i>	154
Tabel V.14 <i>Testing Sort Cards</i>	156

DAFTAR LAMPIRAN

A. DATA PENULIS.....	xvii
----------------------	------