

Checkmate



Ashraf Ismail
Bretton MacLean
Jacques Lebrun
Rahwa Keleta

Agenda

- ▶ Introduction
- ▶ System Definition
 - Package Diagram
 - Screen Shots
 - UI Mockups
- ▶ Quality Assurance Strategy and Process
 - Philosophy
 - Testing Strategies
- ▶ Test Framework and Data
 - Tools
 - Testing "Data"
- ▶ Test Cases and Reporting
 - Test Cases
 - Bugzilla
- ▶ Test Plan

Introduction

▶ Checkmate is...

- A First-Person Shooter game
- Designed for up to 32 people to play over the Internet or a Local Area Network
- Team-based
- Class-based
- A modification of an existing game
 - ▶ Unreal Tournament 2003

▶ Uses a client-server architecture

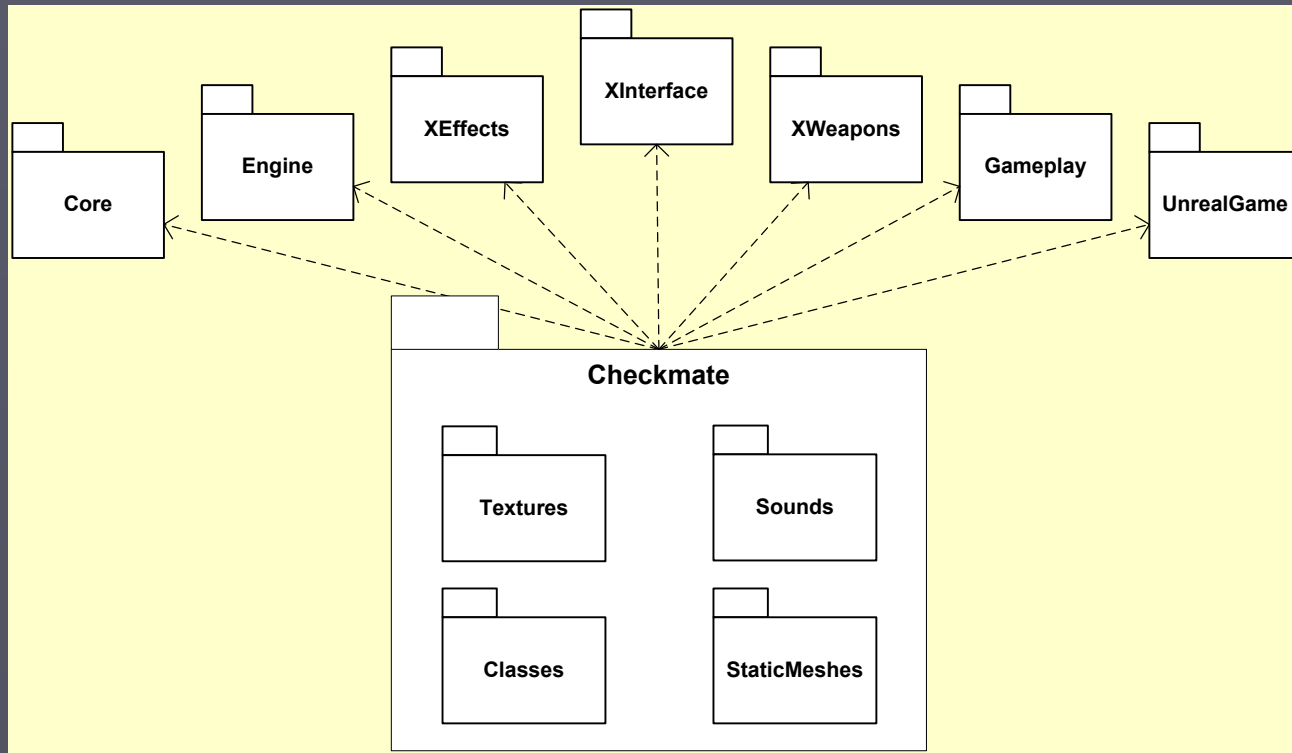
Introduction

► How the game is played:

- 2 Teams: White vs. Black
- First player to join a team becomes the team's *King*
- All other players start as *Pawns*
- Rounds are won by eliminating the other team's King
- Players accumulate *credits* by fragging players from the other team
 - Uses a ratio system:
 - **creditsAwarded = ceiling (enemyClassValue / yourClassValue)**
- Credits can be used to change *player classes* , according to the point value of the unit in chess
 - Knight=3, Bishop=3, Rook=5, Queen=9
- The team to win the most rounds at the end of a certain time period is declared the winner of the match

System Definition

► Package Diagram



System Definition

► Screen Shots: Gameplay



System Definition

► Screen Shots: Gameplay



System Definition

► UI Mockups



System Definition

► UI Mockups



Quality Assurance Strategy & Process

► Philosophies

- Very complex project, therefore a variety of testing strategies and tools will be used
- Automated testing tools are helpful, but they don't always tell the whole story; no substitute for human testers

► Approach

- Testing will be a continuous process, using the iterative approach
- Majority of testing will be focused on gameplay; includes scenario-based tests, monitoring log files, and finding potential exploits

Quality Assurance Strategy & Process

▶ Testing Activities

- White box
- Black box
- Code inspection
- Scenario-based
- User Interface
 - ▶ Heuristic evaluation
 - ▶ Video evaluation
- System testing
- Stress tests
- Basic Unit Testing
 - ▶ Scoring/Credit formula

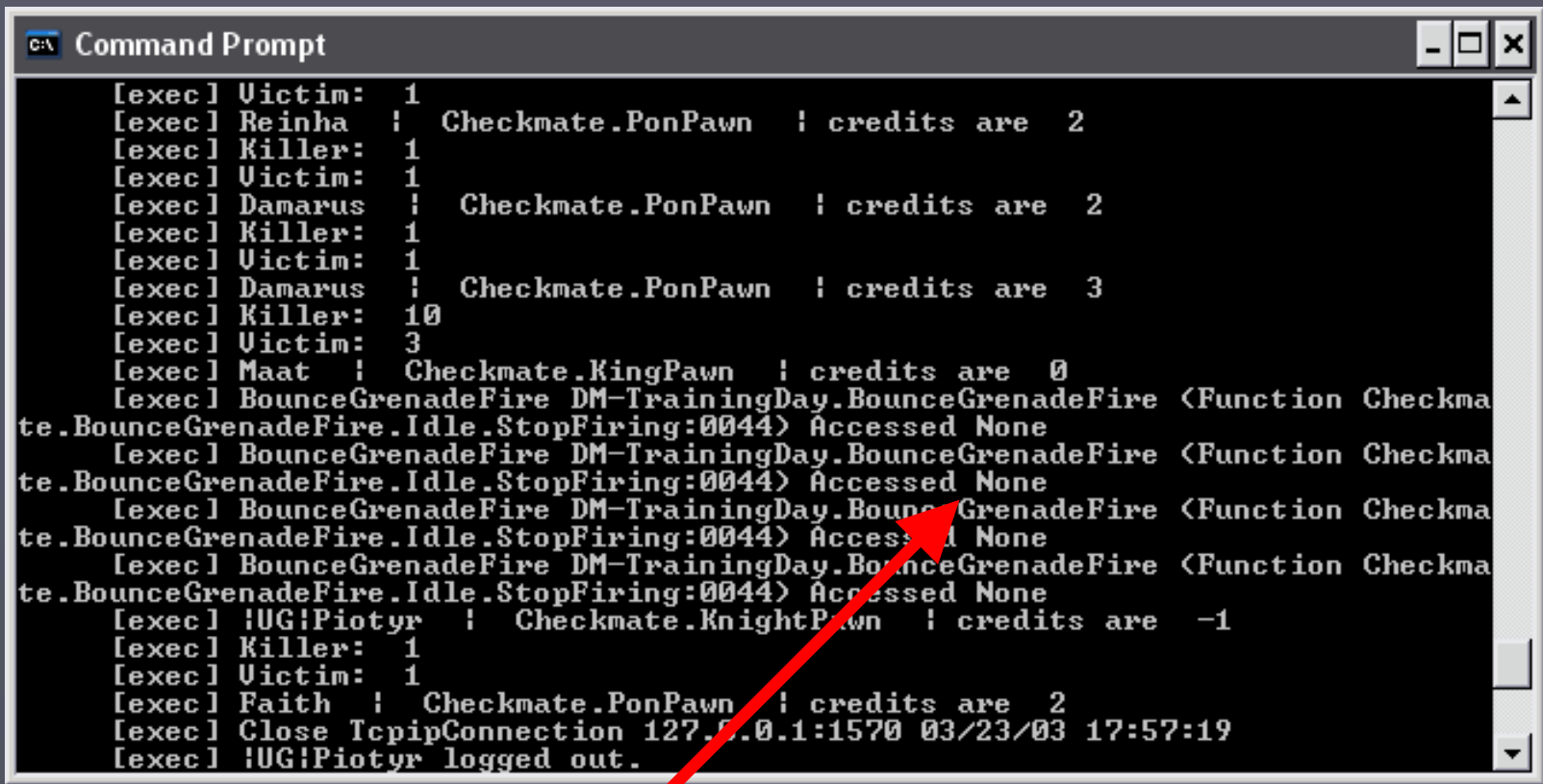
Test Framework & Data

► Tools

- Bugzilla: defect tracking system
- WOTGreal: editor
- Ant
- In-game console commands (“cheats”)
- .log files: generated during the game
- Bots: computer-controlled players
- Eclipse CVS: version control system
- Nightly builds

Test Framework & Data

- ▶ Debugging example: Ant console messages



```
C:\> Command Prompt
[exec] Victim: 1
[exec] Reinha | Checkmate.PonPawn | credits are 2
[exec] Killer: 1
[exec] Victim: 1
[exec] Damarus | Checkmate.PonPawn | credits are 2
[exec] Killer: 1
[exec] Victim: 1
[exec] Damarus | Checkmate.PonPawn | credits are 3
[exec] Killer: 10
[exec] Victim: 3
[exec] Maat | Checkmate.KingPawn | credits are 0
[exec] BounceGrenadeFire DM-TrainingDay.BounceGrenadeFire <Function Checkma
te.BounceGrenadeFire.Idle.StopFiring:0044> Accessed None
[exec] BounceGrenadeFire DM-TrainingDay.BounceGrenadeFire <Function Checkma
te.BounceGrenadeFire.Idle.StopFiring:0044> Accessed None
[exec] BounceGrenadeFire DM-TrainingDay.BounceGrenadeFire <Function Checkma
te.BounceGrenadeFire.Idle.StopFiring:0044> Accessed None
[exec] BounceGrenadeFire DM-TrainingDay.BounceGrenadeFire <Function Checkma
te.BounceGrenadeFire.Idle.StopFiring:0044> Accessed None
[exec] !UG!Piotyr | Checkmate.KnightPawn | credits are -1
[exec] Killer: 1
[exec] Victim: 1
[exec] Faith | Checkmate.PonPawn | credits are 2
[exec] Close TcpipConnection 127.0.0.1:1570 03/23/03 17:57:19
[exec] !UG!Piotyr logged out.
```

“Accessed None” is an error message to look out for!

Test Framework & Data

▶ Test Data

- System inputs are interaction-driven
- Very little external data used
 - ▶ Client settings
 - ▶ Server settings
- Client/Server data created by players/server administrators

▶ MANY possible scenarios to be tested

- Only major tests associated with requirements will be listed

Test Cases & Reporting

- ▶ Test Case 1: Connecting to a server
 - Validates functional requirement 8 - able to play with other Checkmate users over the Internet or a LAN
- ▶ Test Case 2: Joining a team
 - Validates functional requirement 9 – 2 teams to choose from
 - Validates functional requirement 10 – Each team will have 1 King
 - Validates functional requirement 22 – King is played from 3rd person view
- ▶ Test Case 3: Accumulating points
 - Validates functional requirement 21 - players are awarded credits based on:
creditsAwarded = ceiling (enemyClassValue / yourClassValue)
 - Validates functional requirement 13 – classes are given a credit value equivalent to the point values in chess
- ▶ Test Case 4: Selecting a class
 - Validates functional requirement 11 – Any number of non-King player classes on a team
 - Validates functional requirement 12 – Player classes will be unique (unique weapons, characteristics, player model, etc)

Test Cases & Reporting

▶ Test Case 5: A King dies

- Validates functional requirement 16 – A team scores a point by eliminating the other team's King
- Validates functional requirement 19 – When a new round of play begins, each team's King will be determined based on the highest-scoring player

▶ Test Case 6: A match is won

- Validates functional requirement 18 – A match ends by reaching a certain team-score limit or time limit (designated by the server administrator)

▶ Test Case 7: A King disconnects

- Validates functional requirement 20 – If a player who is controlling the King leaves the team, the highest-scoring player of that team becomes promoted to King
 - ▶ If no replacement is available (if there are no players on the team), it is considered a forfeit and the other team scores

Test Cases & Reporting

► Bugzilla

bug List - Microsoft Internet Explorer

Address: http://www.unnaturalgaming.com

bUGzilla database

Bug List

Tue Mar 25 23:55:39 EST 2003

BUGZILLA WOULD LIKE TO PUT A RANDOM QUIP HERE, BUT NOBODY HAS ENTERED ANY.

27 bugs found.

ID	SEV	PRI	PLT	OWNER	STATE	RESULT	SUMMARY
7	nor	P2	PC		NEW		Invalid function call after transferring control of the king
9	enh	P2	PC		NEW		request: need installer logo
10	enh	P2	PC		NEW		request: need checkmate icon
11	enh	P2	PC		ASSI		request: player skins
12	nor	P3	All		NEW		Pawn concept art
13	nor	P3	All		NEW		Rook concept art
14	nor	P3	All		NEW		Knight concept art
15	nor	P3	All		NEW		Bishop concept
16	nor	P3	All		NEW		Queen concept art
17	nor	P3	All		NEW		King concept art
18	nor	P3	All		NEW		Pawn Model
19	nor	P3	All		NEW		Rook model
20	nor	P2	All		ASSI		Knight model

Done Internet

Test Plan

- ▶ March-September
 - Populate bugzilla with testing scenarios
 - Further code inspection of framework
 - Basic unit testing
- ▶ September-October – Deliverable 4
 - System testing
 - Scenario testing
 - Heuristic evaluation
 - Video evaluation
 - Basic unit testing – scoring/credit formula
- ▶ October – Deliverable 5
 - Scenario testing
 - System testing
- ▶ October-November – Deliverable 6
 - Stress Testing
 - OS compatibility testing

Test Plan

▶ Testing Roles:

- Jacques:
 - ▶ (White box testing)
 - ▶ Code Inspection
- Ashraf:
 - ▶ Video Evaluation
 - ▶ Heuristic Evaluation
- Bretton:
 - ▶ (White/Black box testing)
 - ▶ Populating bugzilla with scenario-based tests
 - ▶ System testing
 - ▶ Implementing unit testing
- Rahwa:
 - ▶ (White/Black box testing)
 - ▶ Bot code implementation
 - ▶ Scenario-based
 - ▶ System testing
 - ▶ OS compatibility testing

Questions / Comments