P7

Detailed Design

Processes of Object Oriented Programming, Fall, 2014

Team Name: Project 7

Team Members:

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Modification history:

Version	Date	Who	Comment
v0.1	10/20/2014	Jonathan K. Coole	Initial design details
v0.2	10/23/2014	Jonathan K. Coole	Included diagrams

<u>Design Issues:</u>

Encountered and resolved issues:

- Most significant issue encountered in the process of development has been a lack of knowledge and experience with Unreal Engine 3. This has been resolved by distributing and specifying fields of interest in the engine to each developer. This

allows each developer to narrow the scope of necessary knowledge and to increase proficiency in their field.
- In development some performance issues occurred when running the necessary editing tools for the engine. This was ultimately resolved by re-configuring the allocation of work by redistributing the less performance driven work to those who encountered issues.

- Availability of mobile devices that fit the projects criteria restricted testing platforms. This was resolved by diverting all prototyping and testing routines to the in engine editor, which can simulate some functionality of the mobile device. This ensures that after transference the same functionality should be mirrored.

- Initial issues were encountered when deciding how to create the network system for the game. Resource limitations for dedicated servers and restrictions to the mobile design of the game lead to a change in our network design. We instead changed the design of multiplayer to be based around a local area network where only wifi is needed. This allows us to make the same multiplayer experience without the large overhead costs and resources, though it came at the cost of playing games with anyone in the world.
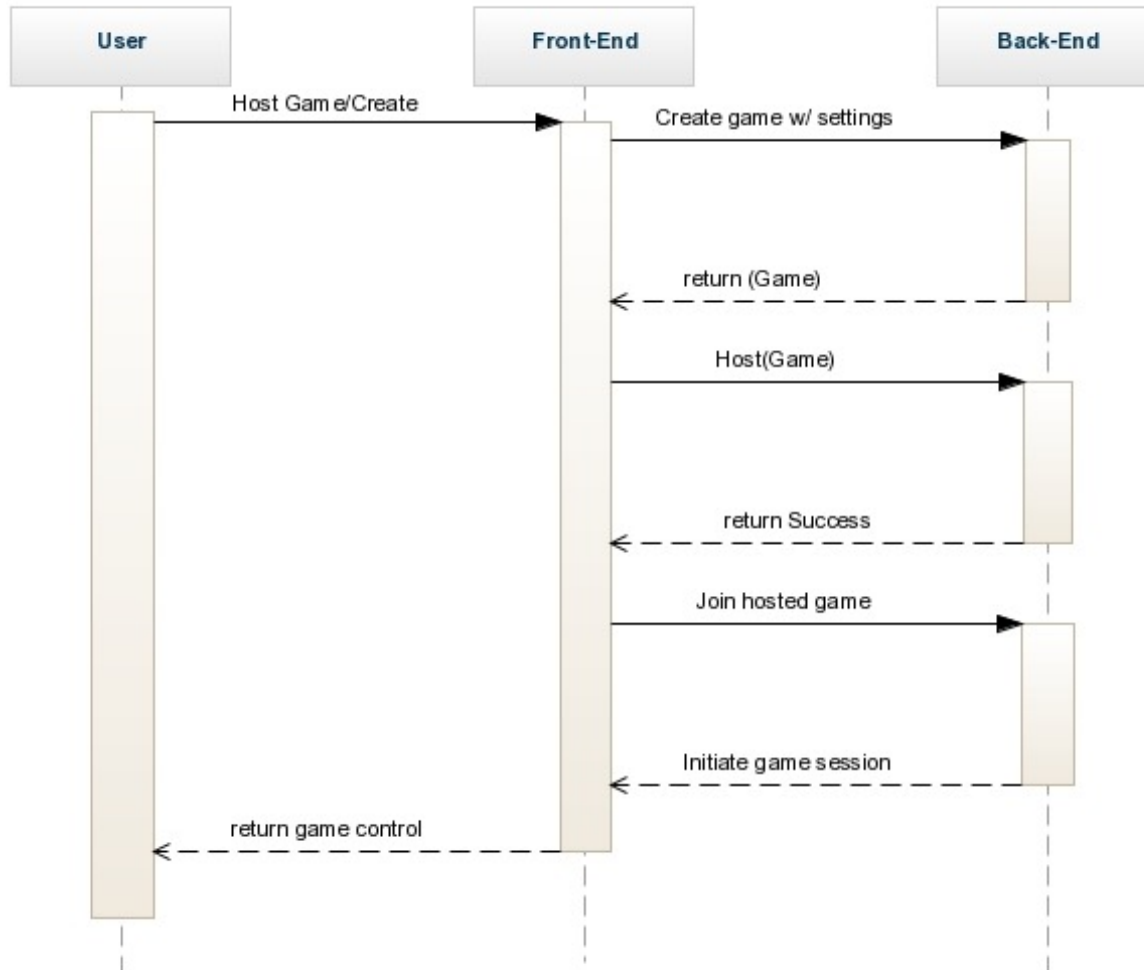
Prototyping:

- Initial prototyping has been performed in individual environments, where each piece is developed and tested until completion. After that initial stage sections are merged and tested together for compatibility (i.e. Weapons are tested in empty environments, and maps tested individually for navigation. After approval they are merged and tested together.)

- Due to initial device limitations all prototypes initially run on a computer. This is made relevant to the mobile device by a simulator. This ensures that the basic logic and functionalities are all in working condition and tested for enjoyability before calibration and polish are added to the iOS device. This increasing the level of focus for each individual section of the game.
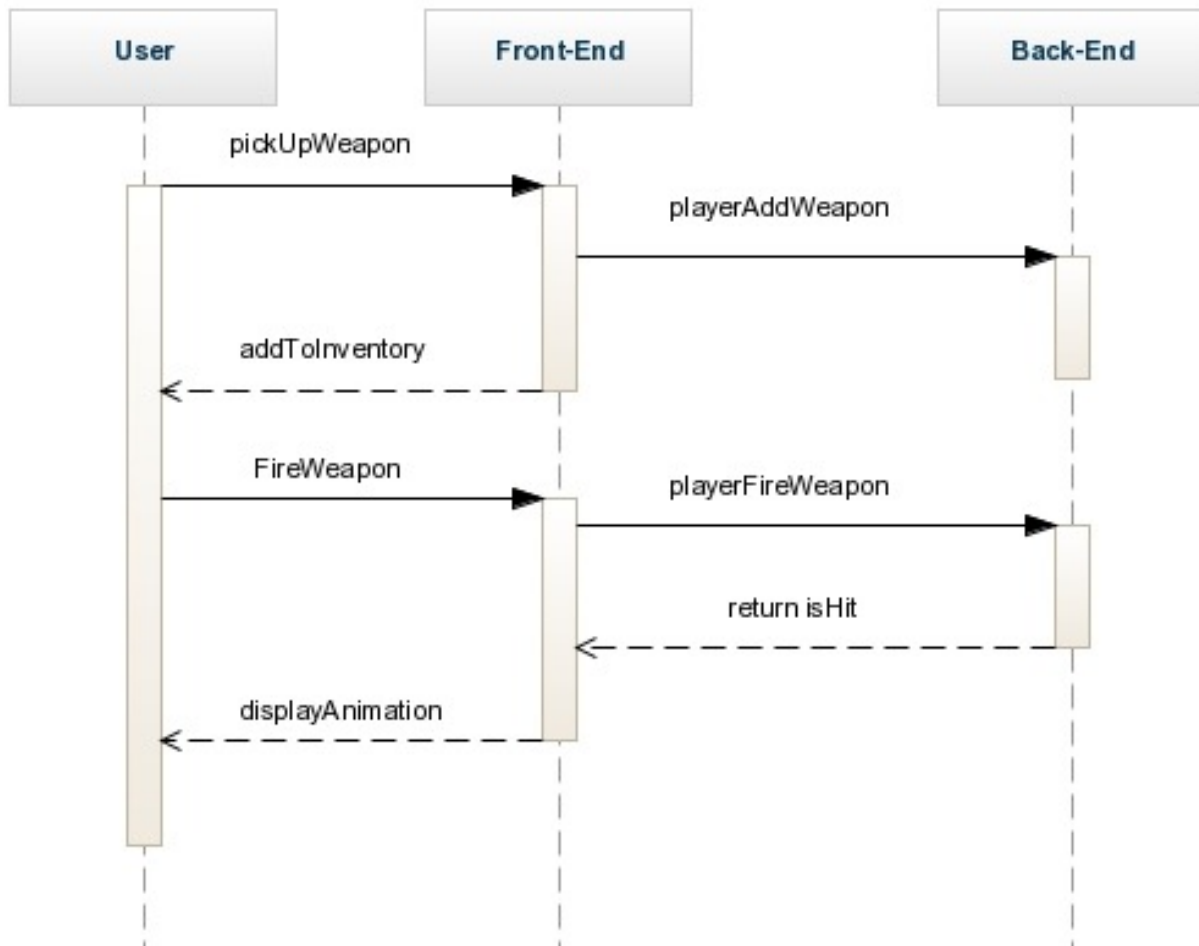
Detailed Design Information:

Sequence Diagrams

Game creation/hosting:

Joining Game:

User | Front-End | Back-End

pickUpWeapon

playerAddWeapon

addToInventory

FireWeapon

playerFireWeapon

return isHit

displayAnimation

Class Diagram:

Team

+ Members : Player
+ Score : int

+ ScorePoint()

2..*

1

Player

- UserName : String
+ Health : int
+ Weapons : Weapon[]

+ SearchForMatch()
+ JoinMatch()
+ Move()
+ Shoot()
+ PickUpItem()

1

1..*

Match

+ RoundTime : int
+ NumRounds : int
+ ScoreLimit : int
+ GameMode : String
+ Map : Map
+ Teams : Team[]
+ Items : Item[]

+ CreateTeams(Player[])

Host

- HostName : String

+CreateMatch (RoundTime, NumRounds, ScoreLimit, GameMode, Map)

Weapon

- Name : String
+ AmmoInClip : int
+ AmmoRemaining : int
+ DamageType : String
+ DamageAmount : int

+ Fire()
+ Reload()

1

0..*

Item

+ ItemType : String
+ RespawnTime : int
+ Position : (int, int)

+ Respawn()