

Group Number: 5

Members:

- Muhammad Asim Iqbal – BSCS14002
- Mahad Saleem – BSCS14008
- Muhammad Murtaza Azam Khan – BSCS14027
- Omer Zaman – BSCS14046

Questions/Answers

1. Do you think you need mathematical verification of correctness of your system or a part of your system? Why?

Yes, we can mathematically verify some aspects of the system such as the change in position by using the Euclidean distance formula. Troop balancing will be carried out. Each troop has a weakness, as well some strength in some area. To balance the stats of a troop, a predefined mathematical equation will be followed. This equation will define rewards, winning and difficulty of upgrading a troop as the player progresses.

2. Can you separate various concerns of your project from functional and quality perspectives? Highlight the concerns and describe how can you handle concerns separately?

Yes, we can separate various concerns of our project from functional and quality perspectives.

Functional:

Concerns	Solutions
Battle logic	We will create subsystems. Some of which are: Buildings subsystem, Character subsystem, Character subsystem, sound and FX subsystem.
Communication	We will create subsystems. Some of which are: Network subsystem, multiplayer subsystem.
User Interface	This will have its separate subsystem.
User Account and game progress	We will create subsystems. Some of which are: Network subsystem, etc.

Quality:

Concerns	Solutions
Optimization	The product will be well documented. Rigorous testing will be performed.
Game economics	The game will progress in a usual manner. No sudden gameplay changes. Game balancing techniques will be followed.
Network Performance	Minimum reliance on Networking.

3. Identify some functional modules in your system. Discuss coupling and cohesion aspects.

Some of the Functional modules in our system:

- Network Module
- UI Module
- Battle Logic Module
- Character Logic Module
- Character Statistics Module
- Multiplayer Module

The network and UI module are lowly coupled and both units are highly cohesive. The network module is concerned with establishing a connection between two players. Whereas the UI module provides a layout to the user for efficient and intuitive interaction. The battle logic module is a separate unit which deals with how the gameplay would proceed, it is highly cohesive and there is minimal coupling with modules like character logic module and multiplayer module. Likewise, character modules have minimal coupling between them as one is concerned with the in-game mechanics and animation whereas the other is involved in progression. The multiplayer module is highly cohesive and only interacts with the network module, the coupling is minimum.

4. Identify the potential future changes in your system. Pick one potential change and discuss how would you address it in your system?

Some of the potential changes that could be made in the future are:

- **Multiple Levels**
- In-app purchases
- Social Media Integration
- New Characters
- Multi-Platform
- Game Modes

The game would initially carry only one level or map but in the future multiple levels could be integrated with an increase in toughness and a change in landscape. The base hit points would be increased and a greater amount of XP will be rewarded to the users. The player will be given a more rewarding prize depending on the level the user is playing in.

5. Which increments would you suggest if you are asked to build your system incrementally?

The construction of the system could progress in the following order:

- UI and Level Design
- Character Design and animation
- Character Logic
- Character Statistics
- Battle Logic
- Networking
- Multiplayer

