**History Arcade**

**Testing Report Summary***Michael Lemus, Daniel Rios, Muhammad Zeeshan - Group 30*

History Arcade is a turn based trivia game playable against other people or computer AI. Topical questions are linked to regions and can be answered to obtain points and ownership of territories. Players can move from region to region around maps related to historically significant events. The players’ goal is to get the most points/territory claims before the number of rounds in the game has been completed.

The objective of our game was to be both entertaining and educational for students and generally anyone interested in learning about history. The game is geared toward being used in a classroom-like environment to facilitate learning while keeping students entertained. In light of this, we believe the features most important to the game’s success as a product are its historical accuracy and its entertainment value.

Given that the game’s key features are historical accuracy and entertainment, we paid close attention to the details of the information presented throughout the game. We wanted to be sure that the information being presented through the game was correct and representative of the historical context. Also, we wanted the game to be engaging enough to maintain the interest of students whilst communicating key historical information about significant events. The engagement factor comes from the competitive aspect of the gameplay.

Here is a brief summary of how the gameplay process operates. Currently, the game has no login process or notion of user accounts so there is no required account creation. The game starts by displaying the main menu of the game where players can input the game settings for rounds, number of players, and map to play on as desired. Assuming the game server is running already, players can then start or join a game session with the settings they specified earlier. If a player has chosen to start a multiplayer session then the main game UI will display with a status message indicating that another player is being waited for. Otherwise if the player has chosen to start a singleplayer session, the game will immediately start with an NPC of random difficulty as the player’s opponent. In either case, the players in the game will start out at a random location on the map. Then the game will proceed as a competition between both players to try and claim the most territories on the map. They will move about the map getting questions about the region they are currently occupying but they have a limited time frame to respond. This is to prevent long wait times in multiplayer and encourage quick thinking. Whichever player has the most points after the set amount of rounds is reached wins the game.

The game’s user interface was developed using JavaFX and runs as a java project in eclipse IDE. We also used a couple of libraries for specific aspects of the game design that we thought would be useful. We used the AnimateFX-1.2.1.jar to add more polish and flair to the game menus. Meanwhile, we took advantage of the json-simple-1.1.jar for parsing json files which allowed us to create json map files which were easily constructed and readable. As for the communication aspect of the program, we developed a method of bookkeeping for the connections incoming to the server. The server has a messenger manager whose purpose was to track which players in the game are associated with which connection. This allowed the server to distinguish between players and communicate with them on an individual basis or with all of them at once.

In terms of the testing and inspection, we gave special attention to the methods relating to game UI display and the code in Location.java since a lot of the game is centered around those parts of the program. We thoroughly tested the game’s main menu for any issues related to the settings the player can adjust for the game session to create. Most of the tests we performed passed but upon doing the inspection process we discovered some bugs that we missed during the testing phase. There was an issue involving the round number input box and certain inputs like negative integers and numbers beyond the maximum integer size. Also, we discovered a couple bugs caused by a few typos found in the methods used to position the player icons on the game map and the map files. As for Location.java, there were no bugs discovered but a couple of missing comments and notes were not present and needed to be added.

We also addressed some open issues and ideas for the future iterations of development. The document the previous group wrote to describe the nature of the game included some features that we had not yet implemented into the game. Features such as player accounts and leaderboards for highest player scores. These features would require database management systems being created and we believe that JDBC library might be useful for this purpose. We also considered the possibility of creating buttons that show on the map for players to use to move from place to place instead of manually typing region names.

Looking back on the project, we had some setbacks during development which ended up delaying our work on other features of the game. We switched from JavaSwing to JavaFX midway through development because we believed it would be better for the project overall since it looked nicer and more people were familiar with it. JavaSwing allowed us to get something off the ground quickly but in the long term it would have been better if we thought more about which library to use for developing the UI instead. However, our switch to JavaFX paid off in the end since it allowed us to make use of an animations library which made our game’s main menu look much nicer than we originally anticipated.