# **Test Plan: M4 (Team 17)**

**Milestone 4**

| **Category** | **Description** | **Steps to Perform** | **Outcome** | **Status** | **Completed By** | **Where to find in the code** |
| --- | --- | --- | --- | --- | --- | --- |
| Playability | 10 minutes of non-repetitive gameplay. Different enemies are rolled out depending on how long the user can survive, which is enough to entertain for 10 minutes. | Play the game. | 10 minutes of non-repetitive gameplay | ​COMPLETED | Everyone | N/A |
| Stability | The game includes all the features from previous milestones. All the bugs reported are fixed. The game resolution is good and the aspect ratio is good too. It works fine, with no glitches, or crashes, plus at a good frame rate too! | Play the game. | Very stable game with no unexpected behaviours. | COMPLETED | Everyone | N/A |
| User Experience | The game includes a proper tutorial where the commands to play + enemies are introduced with animations during the game. Not only this, but there is also a help menu to familiarize with the commands in-game. | Play the game. Tutorial is introduced depending on the gameplay. For commands, press “H”. | User will be introduced to the controls and learn about each enemy as the character encounters them. | COMPLETED | Tarun | world\_system.cpp >  updateTutorial(float elapsed\_ms), updateEnemyTutorial(),updateCollectibleTutorial() |
| Robustness | Apart from the template leaks, there are no other memory leaks. The user can tab in/tab out/minimize without affecting gameplay since the game is paused. There should be no input lag or stuttering. | Tab in/tab out/minimize the game screen. | The game should run smoothly with no lags or stuttering. The user can tab in/tab out fine without affecting the game. | COMPLETED | Everyone | N/A |
| Reporting | Updated bug list & test plan uploaded. Video has been uploaded. | - | - | COMPLETED | Everyone | N/A |
| Creative Element (Basic) | Game Balance. The enemies are rolled out in 2 ways, tutorial/non-tutorial modes. When tutorial is enabled, enemies are spawned in a way that user is familiar with all of them first before diving into game. Non-tutorial mode dives straight into the game with balance adjusted based on time and performance. | Try both Tutorial and Non-Tutorial Mode and see the difference. | The enemies should spawn more frequently in the tutorial mode, but non-tutorial mode would progress normally. | COMPLETED | Yan Naing | spawn\_manager.hpp & spawn\_manager.cpp |
| Creative Element (Advanced) | 2.5D Lighting. | Play the game. | Lighting is cast by the player holding the torch, and all the entities on the map have normal maps that show reflections and depths based on the player's point light. | COMPLETED | Katie, Linus | render\_system.cpp > drawMesh(Entity entity, const mat3& projection, const mat4& projection\_screen)  textured\_normal.fs.glsl, animated\_normal.fs.glsl |
| Creative Element (Advanced) | Particle Effects | Play the game. | Different particle effects can be seen, such as smoke from the torch, dash frames when the player dashes (Press C) and the smoke that comes out when the wizard casts a fireball. | COMPLETED | Linus | particle\_system.cpp  spawn\_manager.cpp > spawn\_particles(float elapsed\_ms) |

Other Features (Where to find the code)

* Point System -> world\_system.cpp > void WorldSystem::handleEnemiesKilledInSpan(float elapsed\_ms)
* Inventory System -> world\_system.cpp > void WorldSystem::equipItem(INVENTORY\_ITEM item, bool wasCollected), void WorldSystem::unEquipItem()
* Apply Weapons -> world\_system.cpp > void WorldSystem::leftMouseClickAction(vec3 mouseWorldPos)
* Phantom Trap -> ai\_system.cpp > std::pair<bool, vec3> AISystem::is\_phantom\_closer(Entity enemy), world\_init.cpp > Entity createPhantomTrap(vec2 pos)