

Team 7 Game Milestone Three: Playability

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Overview

Listed below is the milestone for Team 7: Mystic Crusaders. We have the proposal portions inserted below, with commentary on how each goal is accomplished.

Game Proposal Features

Week: February 22

- 1 player, HP, Mana, at least 1 skill
Completed. Up to this milestone we have one player with HP, mana and experience. The hero has 3 skills, fireball, ice blades and lightnings.
- Game termination is smooth
Completed. Press esc to exit the game
- Basic hero level up
Completed. The hero can level up the skills through skill tree screen.

Week: March 1

- Implement more skills, includes simple visual effects
Completed. We implemented animation for lightnings.
- Implement skill upgrade system
Completed. User can pause the game and enter the skill tree screen to upgrade the skill to a certain level.
- 2 maps with obstacles and elements
Incomplete. For now we only implemented one map. Implementing multiple skills and reworking current skills took up most of our manpower.
- simple in game UI (change hp, mana bar based on reaction between hero and enemies)
Completed. UI is graphical and displays HP, MP and experience in real time.

Week March 4:

- Animation for movement of hero(walking action, attack action)
Completed. We have hero animation for movement and death.
- Animation for at least one skill
Completed. We implemented lightning's animation
- Some enemies travel in smooth nonlinear curved path
Completed. Purple spider enemies could travel non-linearly
- In game pause
Completed. We can pause for skill tree screen.

- Verify on track for milestones
Completed.

Milestone Requirements

For this milestones you should continue to support all features from prior milestones. You should also include detailed geometry, non-linear motion, collision detection and response, and time-stepping based physics. You should test the playability of all new features and ensure alignment with game development plan.

(75%) Milestone requirements:

- ☐ Provide complete playable prior-milestone implementation
Completed
- ☐ Sustain progressive, non-repetitive gameplay for 4min or more including all new features (with minimal tutorial)
Completed. This milestone we enhanced the gameplay by providing more freedom on skill using.
- ☐ Implement time stepping based physical animation
Completed. We implemented non-trivial physics properties such as momentum. The enemies get knocked back when being hit.
- ☐ Incorporate one or more polygonal geometric assets
Completed. The tree trunk in the game is polygonal geometric.
- ☐ Implement smooth non-linear motion of one or more assets or characters
Completed. The third enemy moves in spline.
- ☐ Implement an accurate and efficient collision detection method (include multiple moving assets that necessitate collision checks)
Completed. Collision detection between textures and textures, textures and mesh.
- ☐ Stable game code supporting continuing execution and graceful termination.
Completed.

(25%) Creative: You should implement one or more additional creative elements. These can include additional assets, rendering effects, complex gameplay logic, or pre-emptive implementation of one or more features from subsequent milestones.

- ☐ Skill screen
 - ☐ Player can switch between different elements for skills, such as ice, thunder and fire. For each element, the player has three skills that they can level up. Each skill has the maximum of 5 levels. Pressing a skill will light up the “level up” button, if there is an unused skill point from the player. Pressing the “level up” button would allow the player to upgrade 1 skill point on their desired ability. There are 3 different sub-skills upgradeable per magic ability, and we have 2 magic abilities implemented so far (out of 3 possible abilities to upgrade).
- ☐ Buttons for clicking
 - ☐ Reusable for the future, which allows reductions in programming time from hardcoding everything as well as improving readability. Intakes: a bunch of

size and transparency-related attributes, the path for the image file, and a function pointer for the desired on-click effect.

- ❑ Adding third skill: Lightning
 - ❑ Animation created in 2 stages: the lightning coming from the top of the screen does not affect enemies, but the “impact” on the electrocuted grounds will slow down (stun) enemies and deal damage over time. Abilities extendable through the Skill Screen interface.
- ❑ Adding the third enemy type: Amplifier
 - ❑ Power up nearby enemies with 4 different power-up types. Red: high speed and deadly. Green: tanky with high hitpoints. Blue: long ranged and sudden. Purple: unpredictable. (Amplifier moves with non-linear motions - spline)
- ❑ Spider and Robots animation
 - ❑ Added subWidth and subHeight variables in SpriteSheet class for individual sprites to accommodate sprite sheets in various dimensions.
- ❑ Environment shader for trees
 - ❑ Added fragment shader for trees’ swaying, controlling bend factor and speed.
- ❑ Level up with exp bar on UI
 - ❑ Including UI changes, new sound effect and light up effect on player upon levelling up.
- ❑ Full screen mode
 - ❑ The game is now full screen, resolving mouse click outside the windows issue from previous milestone cross-playing feedback.
- ❑ Scrollable skill changing
 - ❑ Reworked codebase to accommodate for multiple MP-consuming skills.