Software Implementation and Testing Document

For

Korona Kingdom

Version 1.0

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1. Programming Languages (5 points)

- Our project is implemented mainly with Python. The majority of us had Python experience and wanted to make a game so Alex recommended we use the Python arcade library. It has to be Python 3.6 or greater because the arcade library does not support the older versions of Python.
- We are also using Extensible Markup Language (XML) for map creation. This was the result of us wanting to use a tiled map editor recommended by arcade. The output of using this editor is a file in the translation memory exchange(.tmx) format.

2. Platforms, APIs, Databases, and other technologies used (5 points)

Inside Project:

- Our project is implemented using the Python arcade library (https://arcade.academy/) for source code.
- The Tiled map editor (https://www.mapeditor.org/) for map generation,

Project Tools (Each of us have our own set-up):

- Editor: Pycharm, Visual Studio Code
- Version Control: Github
- Image Manipulation: GIMP, Microsoft Paint, Pinta (https://pinta-project.com/pintaproject/pinta/)

3. Execution-based Functional Testing (10 points)

Karl Cooley

Inventory

- Tested than when the player hits [I] the inventory pops up / exits. There is currently no doubling of panels. (1/2)
- Tested that the info shows up. Information is correct. (3)
- Tested that correct equipped item shows. Still worked when much more items were added in this iteration compared to last. (4)
- Tested that when the user opens the inventory the tab selected is always in the top left and that when the user scrolls left/right to change the component type it doesn't go out of bounds. (5/6/7)
- Tested that when the user opens the inventory all items they have should appear (even if they have nothing). If a list contains more than one item they can scroll up/down without going out of bounds. (8/10pt1)
- Tested that the selected panel is highlighted in blue, and if they have more items than slots given, they can scroll past 8 slots and all items will just shift upward once. Not possible to go out of bounds. (10pt2)
- Tested that items in Inventory when scrolled through show their correct description and stats (11)
- Tested that the inventory and encounter system should never appear on screen at the same time. Tried to movement keys while in inventory and using [I] while the encounter screen was up. Current behavior is correct. (13/14)
- Tested that when the player hits [Enter]/[BackSpace] items are equipped and unequipped. Checked that arrays showed this data and made checks to make sure 'None' could never try to be accessed (15/16)

- Tested that when the player hits [Enter] on a Consumable the player's health increases as long as it isn't already maxed. The Consumable will also disappear which is intended. If the player's HP is already full, they can still consume it currently. (17)
- Tested that when the player enters an event, they cannot access their inventory (18)

Overlay

Player Info

- Tested that when the user walks around the overworld the user's info, user's energy, and player's image is shown and static. This information is correct now. (1/2/3)

Dialogue Box

- Tested that the dialogue box shows who is speaking, shows an image of the speaker, and shows what is being said. However, a problem has come up from a member using a Linux machine causing the text to be a different font and go out of the correct printed area. (2/3/4)
- Dialogue Box is only on your screen when it needs to be now (Events/Encounter) (1/5)

Menu Box

- Tested that when the user walks around the overworld the menu boxes are shown and static. The only way to access menu options is by keyboard shortcuts (which will be tested in their associated sections). (1)

Event

- Tested that when a player walks into a dialogue event the correct event shows up and the player is unable to move (1/3)
- Tested that multiple dialogue speakers works and that pressing [Enter] makes the conversation continue (5/6)
- Tested that once an event is over the dialogue box disappears and the event also disappears from the map. Even if the user switches maps the dialogue event will stay gone forever. (2/7)
  - Ex. An event you saw on the overworld shouldn't happen again if you return from a dungeon
- Tested that Events can lead directly into Encounters (8)
  - Ex. Boss fight at Dollar Store
- Tested that Event Chaining Works (9)
  - Ex. Dollar Store - Toilet Paper Pick-up creates a Boss Encounter

Alexander Kostandarithes:

Entity Class:

- Tested that all entity items have the required parameters
- Tested that entity stats properly show up in the inventory

- Tested that Entity stats affect their respective characteristics in regards to player stats

Event Class:

- Made sure that, with events with item pickup, the correct item was added, along with the proper inventory slot
- Ensured that certain event items, such as fire and lava, would stay within their respective positions and would continue to function as desired.
- Tested that all tile events did something (i.e player would not run into an un-implemented event trigger)
- Tested that dialogue text did not exceed the borders of the dialogue box

RPG:

- Confirmed that the lava and fire events were not being deleted and remained on the map

Inventory:

- Made sure that, when items were appended to player inventory, they were added to the correct slot

Alexander Jordan:

Encounter system:

- I had to implement a way for the user to choose to exit the encounter system by pushing the [enter] key. I tested this by triggering a random encounter, playing through the end, then ensuring the encounter did not auto-exit unless the player specified it to.
    - After implementing this, I later found a bug that any time a second encounter happened as soon as the player pushed enter the encounter immediately exited instead of handling their menu selection.
    - After finding this bug I tested various ways to fix it and eventually got it to where the [enter] to close functionality works for all encounters in game play, not just the first.
- I also had to ensure that the encounter system displayed the proper string containing the enemy that is being battled upon the start of an encounter. I tested this by triggering a random encounter.
- I also had to ensure that the encounter system displayed a string containing the name of the enemy upon the end of an encounter. This would not have been possible to test without the above mentioned [enter] to close functionality.

Anthony Micciche

Combat System

- Tested that new attacks behave as desired
- Tested that new Boss "AI" worked as desired

- Tweaked the stats and equations for various attacks to help balance the game

Ryan Goldberg:

Event system

- Ensured the events added for the school functioned properly and force the player to trigger them
- Ensured the added tile set integrated with the code

4. Execution-based Non-Functional Testing (10 points)

Karl Cooley

Inventory

1. Tested that the inventory system took less than a second to load.

Overlay

1. Nobody has reported performance problems of the Overlay being slow.

Event

1. People initially had problems with events, but most were easily resolved.

Alexander Kostandarithes:

Event:

- Made sure that Events were created and retired quickly without noticeable lag
- Attempted to add as many events as possible to make the in-game world more diverse

Entity:

- Each Entity object had all the stats required of each item
- Confirmed that each object affected what it was supposed to

Alexander Jordan:

Encounter system:

- I added multiple enemies for random encounters as well as bosses for event triggered boss encounters. To test these I triggered an encounter with the appropriate function parameter for each newly added enemy hardcoded in to ensure that they displayed themselves properly in the encounter window. I then undid these hard coded parameters so that the proper enemy would be triggered either by random, or by a boss event.

Anthony Micciche

Combat System

● Made sure that the attacks that I added worked smoothly.

Ryan Goldberg:

Events:

● Added events that didn't affect performance and are removed properly.

5. Non-Execution-based Testing (10 points)
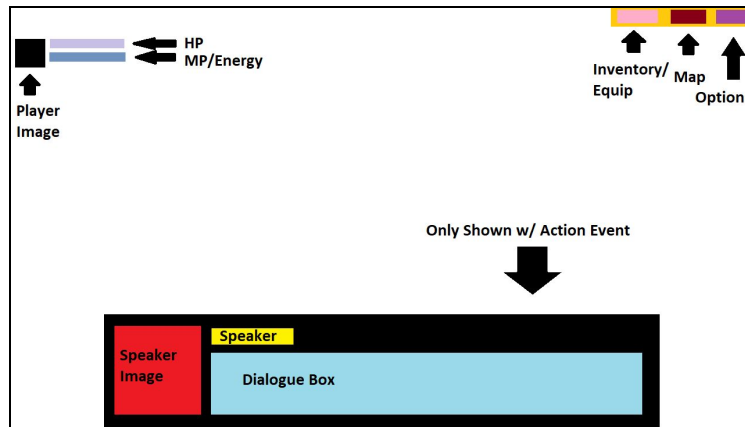
Karl Cooley (*No New Changes*)

Inventory

1. Asked members if they approved of the inventory template. Created a mock-up of inventory before code implementation.

Level	HP	Energy/MP	Currently Selected		Inventory	Map	Options

Helmet (cowboy hat)

Weapon | Shirt | Gloves

Pants

Shoes

Strength | Defense
Intelligence | Immunity
Agility | Luck

Helmet | Weapon | Shirt | Gloves | Pants | Shoes | Quest Items? | Current Item

Cowboy Hat   equipped

Bucket   (Currently Selected)

Desc:
aaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa

Stats:

Str: Def:
Int: Imm:
Agi: Luck:

Other?:

Esc- Return   Switch between tabs with <-,-> and scroll up and down with ^, V on keyboard

2. Code reviewed Alexander's Entity class and gave suggestions on how to implement it into the current Inventory system.

Overlay

1. Asked members if they approved of the overlay template. Created a mock-up of overlay before code implementation.

Player Image — HP — MP/Energy — Inventory/Equip — Map — Options — Only Shown w/ Action Event — Speaker — Speaker Image — Dialogue Box

Alexander Kostandarithes:

Events:

- Assured that Events worked by playtesting after an event tile was added to the game.
- Tested that Events did what they were supposed to do (add item, reduce health, etc)

Entity:

- Through play-testing, items were used and their stats were refined, depending upon their effect to their respective stats.

Anthony Micciche

Combat System

- By following the structure that I had previously built, I was able to confidently continue to add things to the game

Ryan Goldberg

Events::

- Ensured added events and tiles are visually appealing and fit the narrative.