weForgot APCS pd 8

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Final Project Proposal

yoRPG remade with items, and grid movement

Grid movement:

Protagonists will move on a rectangular grid, which will be displayed in the terminal. Randomly selected tiles on the grid will have monsters and shops. The protagonist's tile will be randomly selected and represented with the letter p, and the protagonist will have coordinates, stored in a 2d array, that correspond to their location on the grid. The protagonist can move by changing these coordinates, and this change will be reflected on the grid.

Battle

Turn order is decided by sorting the speeds of the protagonist and the monster. After the protagonist makes a move, their speed becomes the difference between their speed and the monster's speed. If the protagonist is still faster, they get a second attack. This can also happen if the monster is faster. Speeds are reset to their original value after the opposing party attacks. Protagonists can use items before an attack to boost stats until the monster attacks.

Items

After winning a battle, protagonists will receive gold, which they can use to buy items that can boost their stats. Items will be separated into consumables and weapons. Consumables have a turn limit, and after a protagonist makes a certain number of turns, the effects of the consumable will end. Weapons provide a constant stat boost, so long as it is equipped.

NPCS

All monsters, protagonists, and npcs will descend from a Character class, but there will be an interface only for fighters (monsters and protagonists). Characters without this interface may sell items or provide effects when interacted with on the grid.

Boss Battle

When the game starts, all monsters and npcs will be shown. The boss monster will have a tile with a unique letter, and moving onto the tile will start a battle. Defeating this monster ends the game.

Driver

All events will take place in a driver class that will keep track of turns for item duration, and will display the grid when out of battle. A scanner will be used to take player inputs to move the party around the grid and to select options. Everything that happens will be stored in a loop that ends only when the boss is defeated

Tools / topics we are trying to implement with this project

- Inheritance and Constructors: Character class and all its descendents
- Interface: Protagonists and Monsters
- Arrays and 2d arrays: Item inventory, grid coordinates
- Search algorithms and Math.random(): Randomly searching for tiles to become monster / player / npc tiles
- Sorting algorithms: Speed based turn system in battles
- Iteration and recursion: Driver / running the game, grid creation
- Scanner: For all cases where option select is needed

Notes and additional ideas

A level system would be interesting, but we don't know if it will fit with any of the major tools or topics we've learned, or if it would be integral to the project

weForgot
Kevin, Justin, Jonathan

Item
#int turnLimit #String name #int price
+int[] effect()

Character
#String name # String icon #int xcor #int ycor #int HP #int atk #double str #int def #int spd
+Character(String name, int x, int y) +String getCoords() +String getName() +String getStats() +int getHP() +int getAtk() +double getStr() +int getDef() +int getSpd() +int setHP(int HP) +int setAtk(int Atk) +double setStr(double Str) +int setDef(int Def) +int setSpd(int Def)

<<interface>>

Fighter
+void attack(Fighter target) +void lowerHP(int damage) +void specialAttack(Fighter target) +boolean isAlive() +void useItem(Item i, Fighter target) +void translateBuffs(int[] a) // The methods below exist for any class that extends Character +int getHP() +int getAtk() +double getStr() +int getDef() +int getSpd()

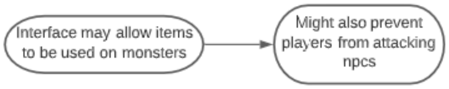
Protagonist extends Character, implements Fighter
-Item[] inventory -Int gold
+void buyItem(Item)

Monster extends Character, implements Fighter

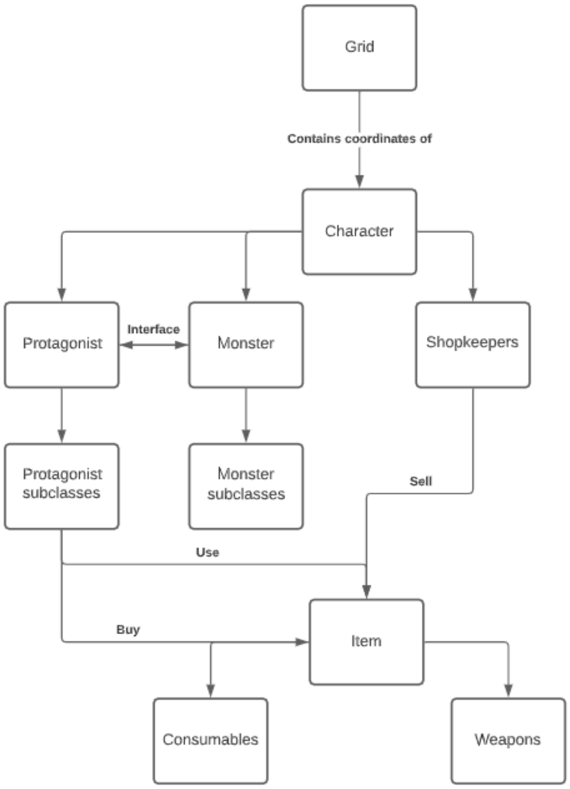
Shopkeeper extends Character
-Item[] shop
-String listItems()

Grid
-Character[][] tiles -Character player -int length -int height
+Grid(int length, int height) +void setupGrid() +void setTile(Character c) +void move(String wasd) +void startEncounter() +String toString() +String addRow(int y) +String addColumn(int y)

Woo
-Scanner scanner -Grid grid -Character[] turnOrder -boolean inBattle -boolean bossDefeated -boolean inShop
+Woo() +void playTurn() +void startGame() +void sortTurnOrder() +void enableGrid() +void enableShop() +void enableBattle()



Interface may allow items to be used on monsters
Might also prevent players from attacking npcs



Grid
Contains coordinates of
Character
Protagonist
Interface
Monster
Shopkeepers
Protagonist subclasses
Monster subclasses
Sell
Use
Buy
Item
Consumables
Weapons