AE1PGP OOP Lab 3: Gladiators

1) Gladiator Combat 1

You have to write a game in which the player has to avoid being killed by the enemy for a given length of time.

The game takes place inside a small fighting arena of a given width and depth (specified via command line arguments). This area is broken up into square tiles to represent each space. Only 1 thing can occupy a space at a time. The tiles surrounding the edge of the area are "wall" tiles, the rest of the tiles are ground tiles. Things can move onto space tiles but nothing can be on a wall tile.

To display the arena the program should print a '#' character for a wall tile and a '.' character for a space tile. For example, an empty 5x10 arena would look like

```
#####
#...#
#...#
#...#
#...#
#...#
#...#
#...#
#...#
#####
```

Inside this arena will be the player's character, represented by the '@' character. At the start of the game the player will be on a randomly selected empty tile.

Also inside the arena will be two tigers, represented by the 't' character. At the start of the game these will also be placed on two randomly selected empty tiles.

After this set-up is complete the game will begin. This is a turn-based game, so the player will make a move, then all the enemies move, then the player, then the enemies, and so on, until the end of the game. The user should enter one of the following numbers 1,2,3,4,6,7,8,9 which represent the direction the player should move. Look at the number pad on the keyboard to see how those numbers translate into a direction (eg, 2 goes down, 9 goes up-right, etc). Because of issues with the way we are handling keyboard input, the user must press return after each command.

If the player tries to move into a wall tile then they stay where they are and do not do anything else that turn.

The tigers will move as directly as they can towards the player's position each turn. They are smart enough not to try to move into walls.

The player starts with 100 health points. At the start of a tigers turn, if the tiger is directly beside the player then they may attack instead of move. This attack will remove between 1 and 6 health points from the player, to be chosen by a random number at each attack.

If the player's health reaches zero the game ends and the player loses.

If the player survives 50 turns then the game ends and the player wins. A single turn is the players move and the enemies moves together.

2) Gladiator Combat 2: The Revenge!

After a while the first game gets a bit boring. Once the tigers get to you there is no way of escaping, so we are going to make 2 changes to the game to make it more interesting.

The first change is that there will now be obstacles inside the arena. When creating the arena, calculate the number of space tiles in the whole arena and replace 15% of the with wall tiles. This will create obstacles for the player to dodge around to avoid the tigers.

The second change is that now the player can fight back! Each tiger now also has health points, but for them it is only 50 points! At the start of the players turn, if a tiger is directly beside the player and they try to "move" into that space, then the player instead attacks that tiger. This will do between 1 and 10 points of damage to the tiger, decided by a random number. If a tiger is reduced to 0 health points, remove it from the arena.

A new winning condition is now possible. If the player kills all the enemies the game ends and the player wins.

3) Gladiator Combat 3: The Empire Strikes Back

Unfortunately things have now become too easy for the player so we are going to make the game more difficult again. As well as 2 tigers there will also be 3 hawks.

The hawk will be represented as a 'h' character. Each hawk starts with 10 health points and causes a fixed 1 point damage when they attack. The major difference is that hawks can move 2 tiles in a single turn towards the player! They cannot move and attack during the same turn, so if they are only 1 space away from the player they can chose to only move 1 space closer instead.

4) Gladiator Combat 4: The Terrible Prequel

The management have decided that our game is almost ready to be released (and earn huge amounts of money!) but a "small" change is required to the arena.

After the arena has been created, and the obstacles described in question 2 have been added, then another type of tile is added to the arena. Sand-storm tiles are represented by the " character (double-quotes sign). The same number of sand-storm tiles should be place as were obstacle tiles.

These sandstorm tiles have the effect of making movement take twice as long. The player and tigers will take 2 turns to move out of a sandstorm tile instead of 1, and hawks will only be able to leave 1 sandstorm tile a turn instead of 2.

Apart from this, there are no other changes to the game.

5) Gladiator Combat X

If you have gotten this far then you can probably see many ways to expand the game, so try them! Some possibilities:

- different tile types;
- different enemy type;
- ranged attacks so that enemies can attack when they are no directly beside the player;
- health or attack power-ups that appear on the arena floor;
- more than 1 kind of attack for each enemy;
- more intelligent strategy for enemy movement such as team-work!

Have fun!

End