Motivation:

Back in the 90's we had a popular game called Pokemon. It is an RPG game that is played in GameBoy. Feeling nostalgic, the OBJECTP teachers want you to create your own version of Pokemon called, Animon.

Pokemon is an interesting game to recreate as the game has lots of elements to consider which would help the students to enhance their skills in object-oriented design and programming.

An Animon is essentially a creature in the World of Animon that players take care of and use for battling other opponent players Animons.

An Animon has the following:
- Name
- Moves
- Hit Points (HP)
- Attack Power
- Defense Power

There are 4 basic kinds of Animons, namely, (1) the Grass Animon, (2) the Fire Animon, (3) Water Animon and (4) Poison Animon.

1. Grass. The default statistics of a Grass Animon is shown below:
   - Hit Points (HP) - 45
   - Attack Power - 49
   - Defense Power - 49

   The moves of a grass include:

Move	Move Base Power
Tackle	50
Vine Whip	45
Take Down	90

2. Poison. The default statistics of a Animon is shown below:
   - Hit Points (HP) - 35
   - Attack Power - 60
   - Defense Power – 44

Move	Move Base Power
Sting	15
Wrap	15
Bite	60

3. Fire. The default statistics of a Fire Animon is shown below:
   - Hit Points (HP) - 39
   - Attack Power - 52
   - Defense Power - 43

Move	Move Base Power
Scratch	40
Ember	40
Fire Fang	65

4. Water. The default statistics of a Water Animon is shown below:
   - Hit Points (HP) - 44
   - Attack Power – 48
   - Defense Power - 65

Move	Move Base Power
Tackle	50
Water Gun	40
Bubble	40

When **Animon_x** attacks **Animon_y**, it uses one of its moves. The damages caused to **Animon_y** is computed as follows:

```
Damage_on_Animon_y = (A * B / 50 / D + 2) * M * R / 255
```

Where :

A = Attack power of Animon_x
B = Base Power of the Move of Animon_x
D = Defense Power of Animon_y
M = Multiplier of the Damage as show in Table 1
R = any random number from 217 to 255

	Grass	Fire	Water	Poison
Grass	0.5	0.5	2	0.5
Fire	2	0.5	0.5	1
Water	0.5	2	0.5	1
Poison	2	1	1	0.5

Table 1. Multiplier of the Damage

Consider this game instance. We have 2 Animons, namely, (1) Anibasaur who is a Grass Animon; and (2) Animander who is a Fire Animon. The initial statistics of the 2 Animons are shown in Table 2.

Anibasaur : Grass		Animander : Fire
Hit Points (HP) - 45 Attack Power - 49 Defense Power - 49		Hit Points (HP) - 39 Attack Power - 52 Defense Power - 43

Table 2. Initial Statistics of a Grass and a Fire Animon

When Anibasaur used the move ***tackle*** on Animander, the damage on Animander is computed as:

```
Damage_on_Animander = (49*50/50/43+2)*0.5*240/255
                   = 1.48
```

49 = Attack power of Anibasaur
50 = Base Power of the Tackle of Anibasaur
D = Defense Power of Animander
M = Multiplier of the Damage a Grass attacking a Fire
240 was randomly generated

After the attack, the new HP of Animander will 37.52, computed as 39–1.48.

Game Mechanics:

MP1:

Create a text-based version of the Animon game. It is a turn-based, 2-player game that has 2 modes, namely:

a. User 1 vs. User 2
b. User 1 vs. Computer

At the start of the game, each player chooses 4 Animons. During a turn, the players fight by selecting one of their Animons and the move that the Animon will perform. The game ends when all the Animons of a player are defeated.

For MP2:

From the basic Animon types in MP1, create "evolved" Animons that (1) has additional moves, and/or (2) combines the moves of the basic Animons. Use the inheritance and interface features of Java in creating the "evolved" Animons. Check the references sections at the end of this page, to get ideas of how to make evolved Animons.

The Animon World is very small. It is basically a grid where the player can move around and interact with the different elements of the game. The Animon World must be at least 15 (height) x 40 (width) tiles. Figure 1 shows a simplied version of the game interface.

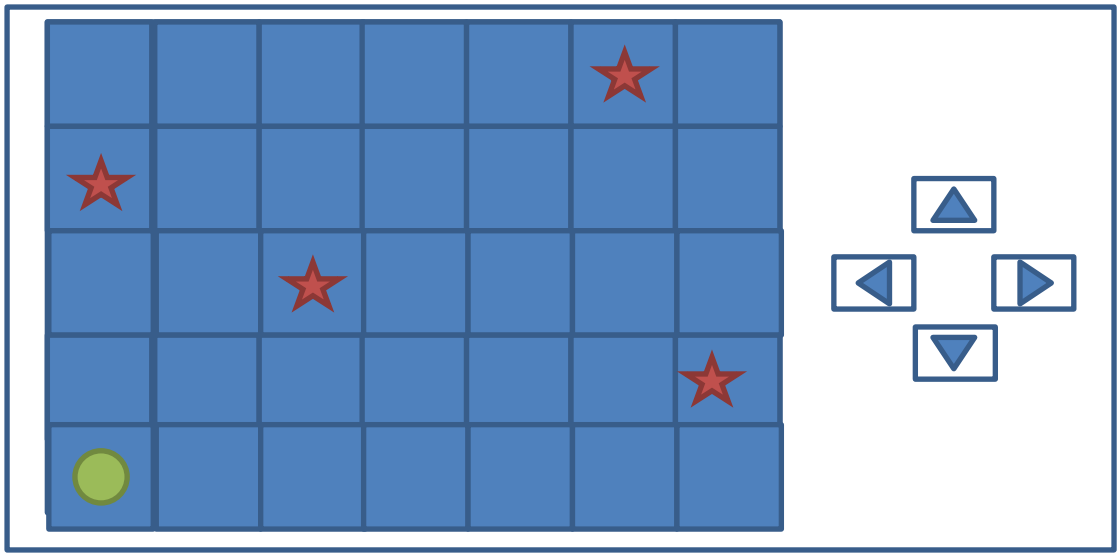

Figure 1. Simplified Interface

The player is shown as the small circle. Enemy Animons are hidden in the tiles, as indicated by the stars. When the player steps on a tile with a hidden Animon, they will fight.

Note:

- We would just like to emphasize that you **DO NOT** need to create your own sprites (background pictures, character pictures, etc.) for the game. You can just use what's available on the Internet and just include them into your project. If you wish to do so, we would also like to remind your to please cite where you got your sprites

References:

- http://en.wikipedia.org/wiki/Gameplay_of_Pokémon
- http://bulbapedia.bulbagarden.net/wiki/Main_Page