IT2154 Assignment 1: Total 100 marks (25%)

Instructions:

1. This is an individual assignment. Student who is caught cheating and practice *plagiarism* will face the following penalty according to NYP policy.
    a. First time in any assessment will fail the entire module
    b. Second time in any assessment will fail all modules in that semester
    c. Third time in any assessment will be removed from the Polytechnic
2. Download the PokemonPocket.zip file from Brightspace.
3. You are responsible for the correct and complete submission of your assignment.
4. Include your name and admin number in the beginning of each file.
5. Zip up the whole application folder, rename it as "<admin_no>_<name>_ASN1.zip" and submit via Brightspace.

Objective of the assignment

Apply C# programming knowledge such as OOP concept & Entity Framework in a scenario-based console application.

Scenario of the assignment

This assignment is to create a **Pokemon Pocket** console application to let pokemon player keep, view the pokemon they caught and check if they can evolve. If the pokemons in the pocket is ready to evolve, the player can evolve their pokemon characters. Each time when players caught a Pokemon, they can add the pokemon to this Pokemon Pocket program.

The pokemon evolution criteria in this application are the simplified version which means that it could be different from the actual game that you have played in the Pokemon App. The evolution of a pokemon here is based on the number of the same pokemon type that the player collected.

The current program has 1 class object, PokemonMaster class with attributes that describe the evaluation criteria such as the name of the pokemon, number of the same pokemon character to be evolved and what it will evolve to. This class has 3 objects – Pikachu, Eevee and Charmander.

Create a Pokemon class and implement subclasses for the 3 pokemons. This means that the players can only add these 3 pokemon characters to the pocket. You can add more pokemon subclasses to make your program more interesting if you want to. The Pokemon class should have the following attributes:

- Name of pokemon,
- HP,
- Exp (Experience),
- Skill and

- Skill Damage

Skill damage is the damage value deducted from the opponent's HP after a strike. The value for skill and skill damage attributes should be assigned in each of the subclasses based on the different type of the pokemons. No change to the skill and skill damage for the evolved pokemon.

Pokemon	**Skill**	**Skill Damage**
Pikachu	Lightning Bolt	25
Eevee	Run Away	20
Charmander	Solar Power	15

Each subclass will have a method named **calculateDamage** to calculate damage and update HP after each possible strike from other pokemon. The method takes in skill damage of the striker as an argument and does not return a value. There is special requirement to calculate damage for each type of pokemon before updating its HP as shown below. HP can be updated by subtracting the damage from current HP.

Pokemon	**Calculation of damage for specific pokemon type**
Pikachu	1 * skill damage
Eevee	2 * skill damage
Charmander	3 * skill damage

Specifications for the Pokemon Pocket Program

1. Repeatedly display a menu for players to enter their choices until 'Q' or 'q' is being entered. Input validation is needed to prevent run-time exception.

```
**************************
Welcome to Pokemon Pocket App
**************************
(1). Add pokemon to my pocket
(2). List pokemon(s) in my Pocket
(3). Check if I can evolve pokemon
(4). Evolve pokemon
Please only enter [1,2,3,4] or Q to quit: 1
Enter Pokemon's Name: pikachu
Enter Pokemon's HP: 45
Enter Pokemon's Exp: 22
```

2. For implementation of option (1) in the menu, prompt user to enter data of the pokemon they caught and store it in the Pokemon Pocket. Input validation is needed to prevent run-time exception.

3. For implementation of option (2), list down the pokemons that the user entered and sort the list in HP order (*descending* order).

```
*****************************
Welcome to Pokemon Pocket App
*****************************
(1). Add pokemon to my pocket
(2). List pokemon(s) in my Pocket
(3). Check if I can evolve pokemon
(4). Evolve pokemon
Please only enter [1,2,3,4] or Q to quit: 2
---------------------------
Name: charmander
HP: 54
Exp: 21
Skill: Solar Power
---------------------------
---------------------------
Name: pikachu
HP: 45
Exp: 22
Skill: Lightning Bolt
---------------------------
---------------------------
Name: eevee
HP: 34
Exp: 34
Skill: Run Away
---------------------------
```

4. For implementation of option (3), list pokemon(s) that can be evolved in the following format.

```
*****************************
Welcome to Pokemon Pocket App
*****************************
(1). Add pokemon to my pocket
(2). List pokemon(s) in my Pocket
(3). Check if I can evolve pokemon
(4). Evolve pokemon
Please only enter [1,2,3,4] or Q to quit: 3
Charmander --> Charmeleon
```

5. For implementation of option (4), evolve pokemon(s). The newly evolved pokemon will have its HP=100 and Exp=0.

```
****************************
Welcome to Pokemon Pocket App
****************************
(1). Add pokemon to my pocket
(2). List pokemon(s) in my Pocket
(3). Check if I can evolve pokemon
(4). Evolve pokemon
Please only enter [1,2,3,4] or Q to quit: 2
---------------------------
Name: Charmeleon
HP:100
Exp: 0
Skill: Solar Power
---------------------------
---------------------------
Name: pikachu
HP: 45
Exp: 22
Skill: Lightning Bolt
---------------------------
---------------------------
Name: eevee
HP: 54
Exp: 34
Skill: Run Away
---------------------------
```

--End of Assignment--