# Week 10:Inheritance and Abstraction

Develop a Game **"Legends of Valor"**, where players can choose different types of characters such as **Warrior, Mage**, and **Archer**. Each character type has its own unique abilities and traits, but shares common actions such as attacking, defending, and using special skills.

Features of the Application:
1. **CharacterActions** Class declares **attack**(), **defend**()[the attack will be blocked and health will not reduce], **useSpecialAbility**(), and **displayStats**()[display the name, current health and current mana].
2. **BaseCharacter** class implements **CharacterActions** and possesses common features for all characters: name, health, and mana (0).
3. **Warrior, Mage,** and **Archer** classes inherit the **BaseCharacter** class.
4. **GameEngine** class can work with any CharacterActions object, allowing dynamic behavior at runtime based on the character type passed.

Character specific behaviors:

| Character | Initial Health | Attack Power | Special Ability | Special Ability Power |
|---|---|---|---|---|
| Warrior | 100 | 25 | Berserk Rage | 35 |
| Mage | 120 | 20 | Arcane Blast | 30 |
| Archer | 90 | 20 | Fire Arrow | 35 |

After each attack(), the mana increases by 50. When the mana reaches 100, characters can unleash their special ability. Reset mana after using special ability. The game will have one **BossEnemy** (initial health:150 and attack power: 30). These 3 characters will play together to defeat the **BossEnemy**. In order to win the game, none of the characters can die before the **BossEnemy**. Implement the GameEngine class, so that the characters win the game.

Sample Output is given below:

```
Game begins! Players vs. Boss
Warrior attacks with power 25!
Boss takes 25 damage! Health now: 125
Mage attacks with power 20!
Boss takes 20 damage! Health now: 105
Archer attacks with power 20!
Boss takes 20 damage! Health now: 85

Boss attacks Warrior with power 30!
Warrior takes 30 damage! Health now: 70
Boss attacks Mage with power 30!
Mage takes 30 damage! Health now: 90
Boss attacks Archer with power 30!
Archer takes 30 damage! Health now: 60

Warrior attacks with power 25!
Warrior uses Berserk Rage with power 35!
Boss takes 60 damage! Health now: 25
Mage attacks with power 20!
Mage uses Arcane Blast with power 30!
Boss takes 50 damage! Health now: -25
Boss defeated! Players win!
```

**Task 1: Implement CharacterAction, BaseCharacter, Warrior, Mage, Archer and BossEnemy Classes (basic functionalities).**
**Task 2: Implement the initial GameEngine Class (Characters and Enemy objects can be called).**
**Task 3: Basic game logics are implemented.**
**Task 4: useSpecialAbility() and defend() are used.**