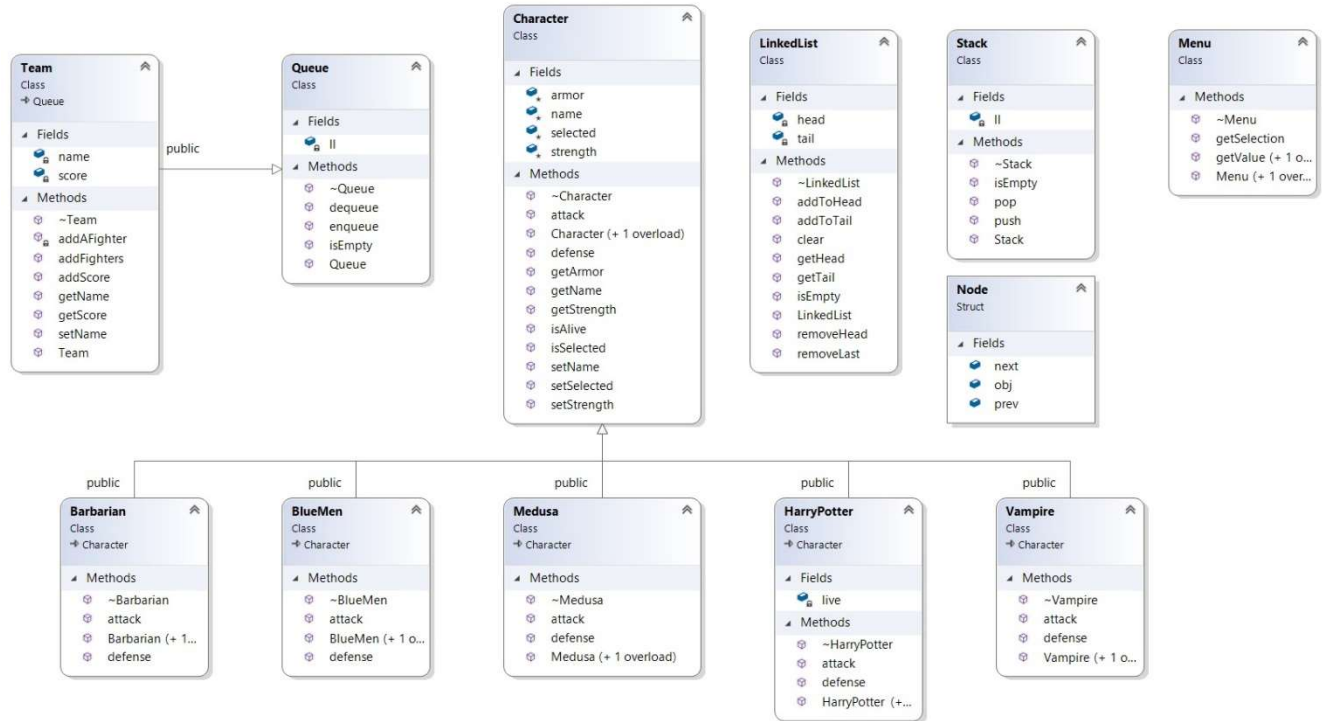


# Brendan Jang

## Project 4 Reflection

### 1. Class hierarchy diagram



### 2. Design description

#### a. Base abstract class:

##### i. Character

##### 1. Attribute

- Armor: object's armor
- Strength: object's strength
- Selected: object's state while choosing the character from the list
- Name: name of fighter

##### 2. Method

- Attack: pure virtual method
- Defense: pure virtual method
- Getter
  - `getArmor() : int`
  - `getStrength() : int`
  - `isAlive() : bool`
  - `isSelected() : bool`
- Setter
  - `setStrength() : void`
  - `setSelected() : void`
- Constructor
- Destructor

#### b. Base class

##### i. LinkedList:

##### 1. Attribute

- a. Head: pointer to head node
    - b. Tail: pointer to tail of the list
  - 2. Method
    - a. Constructor
    - b. Destructor
    - c. Method
      - i. getHead() : Node \*
      - ii. getTail() : Node \*
      - iii. isEmpty() : bool
      - iv. addToHead(Character \* val) : void
      - v. addToTail(Character \* val) : void
      - vi. removeHead() : Character \*
      - vii. removeLast() : Character \*
      - viii. clear() : void
    - d.
- c. Subclass classes: inheriting from Character class
  - i. Barbarian
  - ii. HarryPotter
    - 1. Attribute
      - a. live: Harry Potter's live
  - iii. BlueMen
  - iv. Vampire
  - v. Medusa
- d. Extra class:
  - i. Menu
    - 1. Constructor
    - 2. Destructor
    - 3. getValue() : double
    - 4. getValue() : int
    - 5. getSelection(): int
  - ii. Stack
    - 1. Attribute
      - a. ll: LinkedList
    - 2. Method
      - a. Constructor
      - b. Destructor
      - c. Push(Character \*) : void
      - d. Pop(): Character \*
  - iii. Queue
    - 1. Attribute
      - a. ll: LinkedList
    - 2. Method
      - a. Constructor
      - b. Destructor
      - c. Enqueue(Character \*) : void
      - d. Dequeue(): Character \*
- e. Subclass classes: inheriting from Queue class
  - i. Team
    - 1. Attribute
      - a. Score: int
      - b. Name: string
    - 2. Method

- a. Constructor
- b. Destructor
- c. addFighters(int fighterNum) : void
- d. setName(string name) : void
- e. addScore(int point) : void
- f. getName() : string
- g. getScore() : int
- h. addAFighter() : void

### 3. Reflection

- a. Changes in design
  - i. I have to add a new classes named LinkedList, Queue, Stack and Team to meet new requirements
  - ii. I have to add name attribute to Character class to meet the new requirement
- b. Problem encountered
  - i. There are a lot of line to be printed to screen if we keep showing result of all attacks and defenses
- c. Solution
  - i. We only show the result of each round

### 4. Test table

Test case	Input value	Driver function	Expected Outcome	Observed Outcome
Stop game	2	Main()	1. Play 2. Exit Enter value from 1 to 2: 2	1. Play 2. Exit Enter value from 1 to 2: 2
Play game	1	Main()	1. Play 2. Exit Enter value from 1 to 2: 1  ----- ----- Enter number of fighter for both team:	1. Play 2. Exit Enter value from 1 to 2: 1  ----- ----- Enter number of fighter for both team:
Play a game	1 4 0 John 1 Bob 2 Tom 3 Dick 4 Kim 3 Elly 2 Kate 1 Daisy	PlayAGame	1. Play 2. Exit Enter value from 1 to 2: 1  ----- ----- Enter number of fighter for both team: Enter value from 1 to 1073741823: 4 Team A: Character #1: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 0 Enter name of the character: John	1. Play 2. Exit Enter value from 1 to 2: 1  ----- ----- Enter number of fighter for both team: Enter value from 1 to 1073741823: 4 Team A: Character #1: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 0 Enter name of the character: John

		<p>Character #2: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 1 Enter name of the character: Bob</p> <p>Character #3: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 2 Enter name of the character: Tom</p> <p>Character #4: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 3 Enter name of the character: Dick</p> <p>Team B: Character #1: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 4 Enter name of the character: Kim</p> <p>Character #2: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 3 Enter name of the character: Elly</p> <p>Character #3: Choose a fighter 0. Vampire 1. Barbarian</p>	<p>Character #2: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 1 Enter name of the character: Bob</p> <p>Character #3: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 2 Enter name of the character: Tom</p> <p>Character #4: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 3 Enter name of the character: Dick</p> <p>Team B: Character #1: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 4 Enter name of the character: Kim</p> <p>Character #2: Choose a fighter 0. Vampire 1. Barbarian 2. Blue men 3. Medusa 4. Harry Potter Enter value from 0 to 4: 3 Enter name of the character: Elly</p> <p>Character #3: Choose a fighter 0. Vampire 1. Barbarian</p>
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		<p>2. Blue men  3. Medusa  4. Harry Potter  Enter value from 0 to 4: 2  Enter name of the character:  Kate  Character #4:  Choose a fighter  0. Vampire  1. Barbarian  2. Blue men  3. Medusa  4. Harry Potter  Enter value from 0 to 4: 1  Enter name of the character:  Daisy</p> <p>Round 1: Team A John vs  Team B Kim, Kim Won!  Round 2: Team A Bob vs  Team B Elly, Bob Won!  Round 3: Team A Tom vs  Team B Kate, Tom Won!  Round 4: Team A Dick vs  Team B Daisy, Daisy Won!  Round 5: Team A Bob vs  Team B Kim, Kim Won!  Round 6: Team A Tom vs  Team B Daisy, Tom Won!  Round 7: Team A Tom vs  Team B Kim, Tom Won!  Result:  Team A: 5  Team B: 2  Team A won  List of losers:  Kim  Daisy  Bob  Dick  Kate  Elly  John</p> <p>1. Play again  2. Exit the game  Enter value from 1 to 2:</p>	<p>2. Blue men  3. Medusa  4. Harry Potter  Enter value from 0 to 4: 2  Enter name of the character:  Kate  Character #4:  Choose a fighter  0. Vampire  1. Barbarian  2. Blue men  3. Medusa  4. Harry Potter  Enter value from 0 to 4: 1  Enter name of the character:  Daisy</p> <p>Round 1: Team A John vs  Team B Kim, Kim Won!  Round 2: Team A Bob vs  Team B Elly, Bob Won!  Round 3: Team A Tom vs  Team B Kate, Tom Won!  Round 4: Team A Dick vs  Team B Daisy, Daisy Won!  Round 5: Team A Bob vs  Team B Kim, Kim Won!  Round 6: Team A Tom vs  Team B Daisy, Tom Won!  Round 7: Team A Tom vs  Team B Kim, Tom Won!  Result:  Team A: 5  Team B: 2  Team A won  List of losers:  Kim  Daisy  Bob  Dick  Kate  Elly  John</p> <p>1. Play again  2. Exit the game  Enter value from 1 to 2:</p>
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