ASSIGNMENT -2

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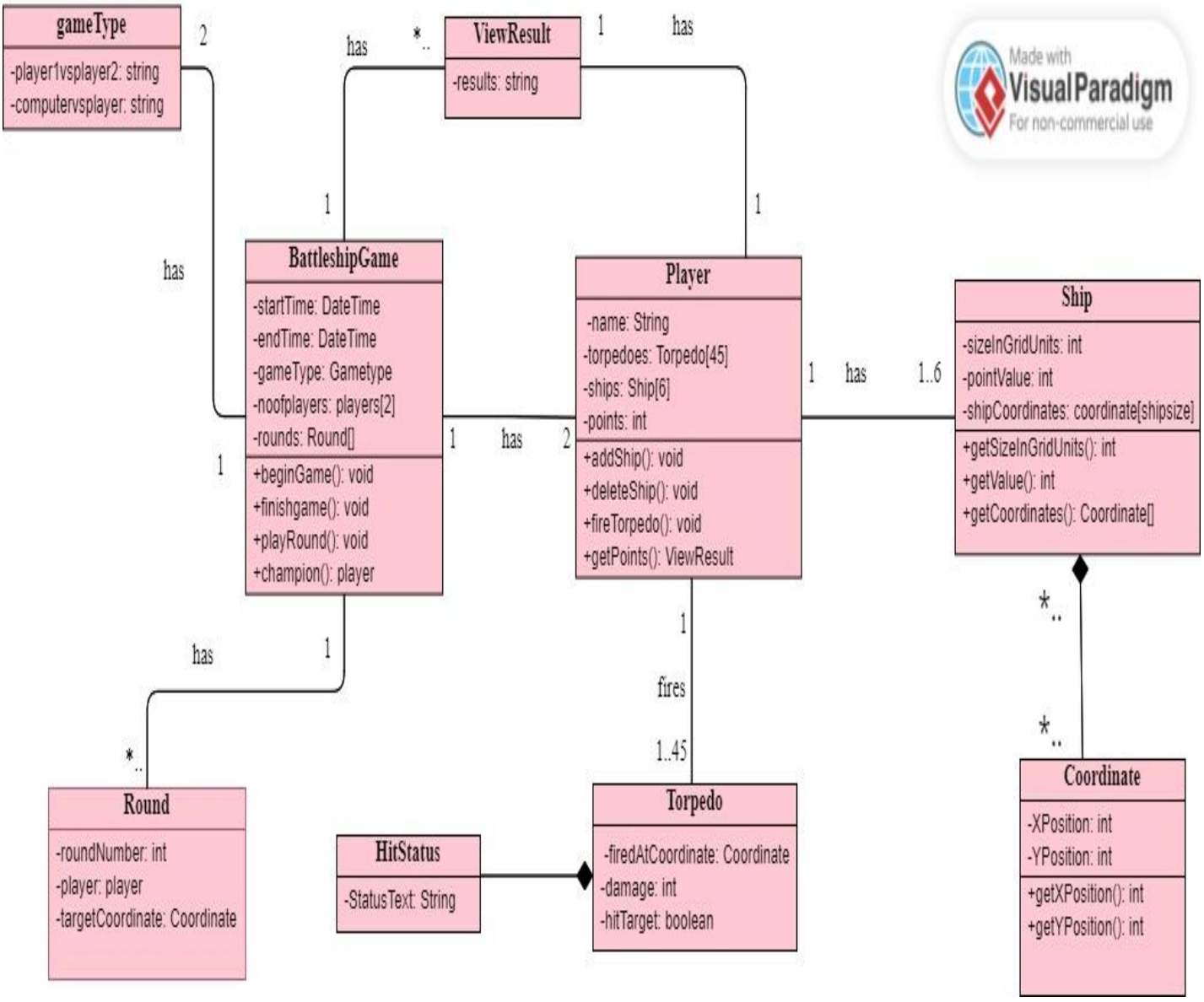
PART-1: UML Class Diagram



PART-2 CODE:

```
import java.util.ArrayList;
import java.util.List;
/**
 *
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 */
// Enumeration for GameType
enum GameType {
    PLAYER_VS_PLAYER,
    COMPUTER_VS_PLAYER
}

class Coordinate {
    private int x;
    private int y;

    public Coordinate(int x, int y) {
        this.x = x;
        this.y = y;
    }

    public int getX() {
        return x;
    }

    public int getY() {
        return y;
    }
}
```

```
class ViewResult {
    private String result;

    public ViewResult(String result) {
        this.result = result;
    }

    public String getResult() {
        return result;
    }
}
class Ship {
    private int sizeInGridUnits;
    private int pointValue;
    private List<Coordinate> shipCoordinates;

    public Ship(int sizeInGridUnits, int pointValue) {
        this.sizeInGridUnits = sizeInGridUnits;
        this.pointValue = pointValue;
        this.shipCoordinates = new ArrayList<>();
    }
    public int getSizeInGridUnits() {
        return sizeInGridUnits;
    }

    public int getPointValue() {
        return pointValue;
    }
```

```
    public List<Coordinate> getShipCoordinates() {
        return shipCoordinates;
    }

    public void addCoordinate(Coordinate coordinate) {
        shipCoordinates.add(coordinate);
    }

    public void removeCoordinate(Coordinate coordinate) {
        shipCoordinates.remove(coordinate);
    }
}

class Player {
    private String playerName;
    private Torpedo[] torpedoes;
    private List<Ship> ships;
    private int points;

    public Player(String playerName) {
        this.playerName = playerName;
        this.torpedoes = new Torpedo[45];
        this.ships = new ArrayList<>();
        this.points = 0;
    }

    public String getPlayerName() {
        return playerName;
    }
```

```
    public Torpedo[] getTorpedoes() {
        return torpedoes;
    }

    public void addShip(Ship ship) {
        ships.add(ship);
    }

    public void removeShip(Ship ship) {
        ships.remove(ship);
    }

    public int getPoints() {
        return points;
    }

    public HitStatus throwTorpedo(Coordinate coordinate) {
        // Logic for throwing a torpedo and determining hit status
        return new HitStatus("Missed"); // Placeholder
    }

    private static class HitStatus {

        public HitStatus(String missed) {
        }
    }
}

class Torpedo {
    private Coordinate firedAtCoordinate;
```

```
    public Torpedo(Coordinate coordinate) {
        this.firedAtCoordinate = coordinate;
    }

    public Coordinate getFiredAtCoordinate() {
        return firedAtCoordinate;
    }
}
class Round {
    private int roundNumber;
    private Player player;
    private Torpedo torpedo;
    private HitStatus hitStatus;

    public Round(int roundNumber, Player player, Torpedo torpedo, HitStatus hitStatus) {
        this.roundNumber = roundNumber;
        this.player = player;
        this.torpedo = torpedo;
        this.hitStatus = hitStatus;
    }

    private static class HitStatus {

        public HitStatus() {
        }
    }
}
class BattleShipGame {
    private DateTime startDateTime;
```

```
private DateTime endDateTime;
private GameType gameType;
private Player[] players;
private List<Round> rounds;
private ViewResult viewResult;

public BattleShipGame(GameType gameType, Player[] players) {
    this.gameType = gameType;
    this.players = players;
    this.rounds = new ArrayList<>();
    this.viewResult = null; // Initialize as null
}

public void startGame() {
    // Logic for starting a game
}

public void endGame() {
    // Logic for ending a game
}

public void playRound() {
    // Logic for playing a round
}

public Player getWinner() {
    // Logic for determining the winner
    return null; // Placeholder
}
```

```
    public void setViewResult(ViewResult result) {
        this.viewResult = result;
    }

    public ViewResult getViewResult() {
        return viewResult;
    }

    private static class DateTime {

        public DateTime() {
        }
    }
}

public class Main {
    public static void main(String[] args) {
        // Create players
        Player player1 = new Player("Player 1");
        Player player2 = new Player("Player 2");

 // Create a BattleShipGame with two players
        Player[] players = { player1, player2 };
        BattleShipGame game = new BattleShipGame(GameType.PLAYER_VS_PLAYER, players)

 // Start the game
        game.startGame();

        // Add ships to players
        Ship ship1 = new Ship(3, 100);
```

```
        Ship ship2 = new Ship(4, 200);
        player1.addShip(ship1);
        player2.addShip(ship2);
        // Play a round
        game.playRound()
        // End the game
        game.endGame();
        // Determine the winner
        Player winner = game.getWinner();
        if (winner != null) {
            System.out.println("Winner: " + winner.getPlayerName());
        } else {
            System.out.println("It's a tie!");
        }
        // Set and get view result
        ViewResult result = new ViewResult("Game Over");
        game.setViewResult(result);
        System.out.println("View Result: " + game.getViewResult().getResult());
    }
}
```

SNAPSHOT: Code running successfully