

Demo 1:

Input Specification:

```
/**
 * This primary demo method is written to run a default game where the
 * characters, gears are
 * automatically instantiated by the battle class. By default the game is
 * played between 'Tony
 * Stark' and 'Thanos'. They have a respective set of gears to equip
 * themselves for the battle.
 */
public static void demo1() {
    Battle endGame = new Battle();
    try {
        endGame.prepareRound();
    } catch (Exception e) {
        System.out.println("Error in preparing Game: " + e);
    }
    endGame.playGame();

    System.out.println(endGame.toString());
}
```

Output: (copy pasted from the IntelliJ output)

Before Sorting:

1. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND
2. Gear Name: Stark Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
3. Gear Name: Flight Thrusters -- Defense Strength: 4; Attack Strength: 3; Gear Type: FOOT
4. Gear Name: Heat Seeking Missiles -- Defense Strength: 0; Attack Strength: 4; Gear Type: HAND
5. Gear Name: Foot Clamps -- Defense Strength: 3; Attack Strength: 6; Gear Type: FOOT
6. Gear Name: Nano-Handblade -- Defense Strength: 1; Attack Strength: 7; Gear Type: HAND
7. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
8. Gear Name: Energy Shield -- Defense Strength: 7; Attack Strength: 1; Gear Type: HAND
9. Gear Name: Stark Glasses -- Defense Strength: 1; Attack Strength: 0; Gear Type: HEAD
10. Gear Name: Repulsor Gun -- Defense Strength: 0; Attack Strength: 8; Gear Type: FOOT

After Sorting:

1. Gear Name: Stark Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Stark Glasses -- Defense Strength: 1; Attack Strength: 0; Gear Type: HEAD
3. Gear Name: Nano-Handblade -- Defense Strength: 1; Attack Strength: 7; Gear Type: HAND
4. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND
5. Gear Name: Heat Seeking Missiles -- Defense Strength: 0; Attack Strength: 4; Gear Type: HAND
6. Gear Name: Energy Shield -- Defense Strength: 7; Attack Strength: 1; Gear Type: HAND
7. Gear Name: Repulsor Gun -- Defense Strength: 0; Attack Strength: 8; Gear Type: FOOT
8. Gear Name: Foot Clamps -- Defense Strength: 3; Attack Strength: 6; Gear Type: FOOT
9. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
10. Gear Name: Flight Thrusters -- Defense Strength: 4; Attack Strength: 3; Gear Type: FOOT

*Gear List
for character
1*

Before Sorting:

1. Gear Name: Infinity Gauntlet -- Defense Strength: 10; Attack Strength: 10; Gear Type: HAND
2. Gear Name: Asgardian Helmet -- Defense Strength: 6; Attack Strength: 0; Gear Type: HEAD
3. Gear Name: Battle Stomper -- Defense Strength: 2; Attack Strength: 4; Gear Type: FOOT
4. Gear Name: Loki's Sceptre -- Defense Strength: 3; Attack Strength: 3; Gear Type: HAND
5. Gear Name: SHIELD's portal -- Defense Strength: 6; Attack Strength: 2; Gear Type: FOOT
6. Gear Name: Tesseract -- Defense Strength: 6; Attack Strength: 1; Gear Type: HAND
7. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
8. Gear Name: Power Stone -- Defense Strength: 0; Attack Strength: 7; Gear Type: HAND
9. Gear Name: Magneto's Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
10. Gear Name: Space diver -- Defense Strength: 1; Attack Strength: 4; Gear Type: FOOT

After Sorting:

1. Gear Name: Asgardian Helmet -- Defense Strength: 6; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Magneto's Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
3. Gear Name: Infinity Gauntlet -- Defense Strength: 10; Attack Strength: 10; Gear Type: HAND

4. Gear Name: Power Stone -- Defense Strength: 0; Attack Strength: 7; Gear Type: HAND
5. Gear Name: Loki's Sceptre -- Defense Strength: 3; Attack Strength: 3; Gear Type: HAND
6. Gear Name: Tesseract -- Defense Strength: 6; Attack Strength: 1; Gear Type: HAND
7. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
8. Gear Name: Battle Stomper -- Defense Strength: 2; Attack Strength: 4; Gear Type: FOOT
9. Gear Name: Space diver -- Defense Strength: 1; Attack Strength: 4; Gear Type: FOOT
10. Gear Name: SHIELD's portal -- Defense Strength: 6; Attack Strength: 2; Gear Type: FOOT

*Gear List
for character
2*

Tony Stark has 49 and 35 defense strength.

Thanos has 50 and 53 defense strength.

} Effective Kit Points

Tony Stark stats:

Tony Stark has Base Attack Points: 9 and Base Defense Points: 8.

Tony Stark's Arsenal:

1. Gear Name: Stark, Stark Glasses -- Defense Strength: 6; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Nano-Handblade, Repulsor Gun -- Defense Strength: 3; Attack Strength: 12; Gear Type: HAND
3. Gear Name: Heat, Energy Shield -- Defense Strength: 7; Attack Strength: 5; Gear Type: HAND
4. Gear Name: Repulsor, Foot Clamps -- Defense Strength: 3; Attack Strength: 14; Gear Type: FOOT
5. Gear Name: Battering, Flight Thrusters -- Defense Strength: 8; Attack Strength: 9; Gear Type: FOOT

*} Player 1
stats*

Thanos stats:

Thanos has Base Attack Points: 13 and Base Defense Points: 10.

Thanos's Arsenal:

1. Gear Name: Asgardian, Magneto's Helmet -- Defense Strength: 11; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Infinity, Power Stone -- Defense Strength: 10; Attack Strength: 17; Gear Type: HAND

}

3. Gear Name: Loki's, Tesseract -- Defense Strength: 9; Attack Strength: 4; Gear Type: HAND
4. Gear Name: Battering, Battle Stomper -- Defense Strength: 6; Attack Strength: 10; Gear Type: FOOT
5. Gear Name: Space, SHIELD's portal -- Defense Strength: 7; Attack Strength: 6; Gear Type: FOOT

Player 2
Stats

The battle ends with Tony Stark having 15 units of damage and Thanos having -4 units of damage.

} Net damage

Thanos, Won the battle!

Demo 2:

Input Specification:

```
/**
 * This demo method is written to run a game where the characters, gears are
 * passed by the user
 * who is willing to play the duel with their choice of characters and gears.
 * Here the user has to
 * define all the gears (max of 10 gears for each player to choose from)
 * before the battle is
 * instantiated and these character and gear objects are passed as arguments
 * (Character 1,
 * Character 2, Gear List 1, Gear List 2).
 *
 * @throws Exception if more than ten gears are provided in the battlefield
 */
public static void demo2() throws Exception {

    ArrayList<Gear> gearList1 = new ArrayList<>();
    gearList1.add(new HandGear(new HitPoint(5, 2), "Repulsor Gun"));
    gearList1.add(new HeadGear(new HitPoint(0, 5), "Stark Helmet"));
    gearList1.add(new FootGear(new HitPoint(3, 4), "Flight Thrusters"));
    gearList1.add(new HandGear(new HitPoint(4, 0), "Heat Seeking Missiles"));
    gearList1.add(new FootGear(new HitPoint(6, 3), "Foot Clamps"));
    gearList1.add(new HandGear(new HitPoint(7, 1), "Nano-Handblade"));
    gearList1.add(new FootGear(new HitPoint(6, 4), "Battering Rams"));
    gearList1.add(new HandGear(new HitPoint(1, 7), "Energy Shield"));
    gearList1.add(new HeadGear(new HitPoint(0, 1), "Stark Glasses"));
    gearList1.add(new FootGear(new HitPoint(8, 0), "Repulsor Gun"));

    ArrayList<Gear> gearList2 = new ArrayList<>();
    gearList2.add(new HandGear(new HitPoint(10, 10), "Infinity Gauntlet"));
    gearList2.add(new HeadGear(new HitPoint(0, 6), "Asgardian Helmet"));
    gearList2.add(new FootGear(new HitPoint(4, 2), "Battle Stomper"));
    gearList2.add(new HandGear(new HitPoint(3, 3), "Loki's Sceptre"));
    gearList2.add(new FootGear(new HitPoint(2, 6), "SHIELD's portal"));
    gearList2.add(new HandGear(new HitPoint(1, 6), "Tesseract"));
    gearList2.add(new FootGear(new HitPoint(6, 4), "Battering Rams"));
    gearList2.add(new HandGear(new HitPoint(7, 0), "Power Stone"));
    gearList2.add(new HeadGear(new HitPoint(0, 5), "Magneto's Helmet"));
    gearList2.add(new FootGear(new HitPoint(4, 1), "Space diver"));

    Character char1 = new Character(new HitPoint(9, 8), CharacterType.TECH,
    "Tony Stark");

    Character char2 = new Character(new HitPoint(13, 10),
    CharacterType.SUPER_BEING, "Thanos");

    Battle endGame = new Battle(char1, char2, gearList1, gearList2);
    try {
        endGame.prepareRound();
    } catch (Exception e) {
        System.out.println("Error in preparing Game: " + e);
    }
    endGame.playGame();
}
```

```
System.out.println(endGame.toString());
}
```

Output: (copy pasted from the IntelliJ output)

{ Before Sorting:

- 1. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND
- 2. Gear Name: Stark Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
- 3. Gear Name: Flight Thrusters -- Defense Strength: 4; Attack Strength: 3; Gear Type: FOOT
- 4. Gear Name: Heat Seeking Missiles -- Defense Strength: 0; Attack Strength: 4; Gear Type: HAND
- 5. Gear Name: Foot Clamps -- Defense Strength: 3; Attack Strength: 6; Gear Type: FOOT
- 6. Gear Name: Nano-Handblade -- Defense Strength: 1; Attack Strength: 7; Gear Type: HAND
- 7. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
- 8. Gear Name: Energy Shield -- Defense Strength: 7; Attack Strength: 1; Gear Type: HAND
- 9. Gear Name: Stark Glasses -- Defense Strength: 1; Attack Strength: 0; Gear Type: HEAD
- 10. Gear Name: Repulsor Gun -- Defense Strength: 0; Attack Strength: 8; Gear Type: FOOT

Gear list
for character 1

After Sorting:

- 1. Gear Name: Stark Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
- 2. Gear Name: Stark Glasses -- Defense Strength: 1; Attack Strength: 0; Gear Type: HEAD
- 3. Gear Name: Nano-Handblade -- Defense Strength: 1; Attack Strength: 7; Gear Type: HAND
- 4. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND
- 5. Gear Name: Heat Seeking Missiles -- Defense Strength: 0; Attack Strength: 4; Gear Type: HAND
- 6. Gear Name: Energy Shield -- Defense Strength: 7; Attack Strength: 1; Gear Type: HAND
- 7. Gear Name: Repulsor Gun -- Defense Strength: 0; Attack Strength: 8; Gear Type: FOOT
- 8. Gear Name: Foot Clamps -- Defense Strength: 3; Attack Strength: 6; Gear Type: FOOT
- 9. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
- 10. Gear Name: Flight Thrusters -- Defense Strength: 4; Attack Strength: 3; Gear Type: FOOT

}

[Before Sorting:

1. Gear Name: Infinity Gauntlet -- Defense Strength: 10; Attack Strength: 10; Gear Type: HAND
2. Gear Name: Asgardian Helmet -- Defense Strength: 6; Attack Strength: 0; Gear Type: HEAD
3. Gear Name: Battle Stomper -- Defense Strength: 2; Attack Strength: 4; Gear Type: FOOT
4. Gear Name: Loki's Sceptre -- Defense Strength: 3; Attack Strength: 3; Gear Type: HAND
5. Gear Name: SHIELD's portal -- Defense Strength: 6; Attack Strength: 2; Gear Type: FOOT
6. Gear Name: Tesseract -- Defense Strength: 6; Attack Strength: 1; Gear Type: HAND
7. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
8. Gear Name: Power Stone -- Defense Strength: 0; Attack Strength: 7; Gear Type: HAND
9. Gear Name: Magneto's Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
10. Gear Name: Space diver -- Defense Strength: 1; Attack Strength: 4; Gear Type: FOOT

*Gear list for
Character 2*

After Sorting:

1. Gear Name: Asgardian Helmet -- Defense Strength: 6; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Magneto's Helmet -- Defense Strength: 5; Attack Strength: 0; Gear Type: HEAD
3. Gear Name: Infinity Gauntlet -- Defense Strength: 10; Attack Strength: 10; Gear Type: HAND
4. Gear Name: Power Stone -- Defense Strength: 0; Attack Strength: 7; Gear Type: HAND
5. Gear Name: Loki's Sceptre -- Defense Strength: 3; Attack Strength: 3; Gear Type: HAND
6. Gear Name: Tesseract -- Defense Strength: 6; Attack Strength: 1; Gear Type: HAND
7. Gear Name: Battering Rams -- Defense Strength: 4; Attack Strength: 6; Gear Type: FOOT
8. Gear Name: Battle Stomper -- Defense Strength: 2; Attack Strength: 4; Gear Type: FOOT
9. Gear Name: Space diver -- Defense Strength: 1; Attack Strength: 4; Gear Type: FOOT
10. Gear Name: SHIELD's portal -- Defense Strength: 6; Attack Strength: 2; Gear Type: FOOT }

Tony Stark has 49 and 35 defense strength. } Effective HP

Thanos has 50 and 53 defense strength.

Tony Stark stats:

Tony Stark has Base Attack Points: 9 and Base Defense Points: 8.

Tony Stark's Arsenal:

1. Gear Name: Stark, Stark Glasses -- Defense Strength: 6; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Nano-Handblade, Repulsor Gun -- Defense Strength: 3; Attack Strength: 12; Gear Type: HAND
3. Gear Name: Heat, Energy Shield -- Defense Strength: 7; Attack Strength: 5; Gear Type: HAND
4. Gear Name: Repulsor, Foot Clamps -- Defense Strength: 3; Attack Strength: 14; Gear Type: FOOT
5. Gear Name: Battering, Flight Thrusters -- Defense Strength: 8; Attack Strength: 9; Gear Type: FOOT

Thanos stats:

Thanos has Base Attack Points: 13 and Base Defense Points: 10.

Thanos's Arsenal:

1. Gear Name: Asgardian, Magneto's Helmet -- Defense Strength: 11; Attack Strength: 0; Gear Type: HEAD
2. Gear Name: Infinity, Power Stone -- Defense Strength: 10; Attack Strength: 17; Gear Type: HAND
3. Gear Name: Loki's, Tesseract -- Defense Strength: 9; Attack Strength: 4; Gear Type: HAND
4. Gear Name: Battering, Battle Stomper -- Defense Strength: 6; Attack Strength: 10; Gear Type: FOOT
5. Gear Name: Space, SHIELD's portal -- Defense Strength: 7; Attack Strength: 6; Gear Type: FOOT

The battle ends with Tony Stark having 15 units of damage and Thanos having -4 units of damage.

Thanos, Won the battle!

Player 1
stats

Player 2
st

ats

} Net Battle
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Demo 3:

Input Specification:

```
/**
 * This demo method is similar to demo2 and is written to run a game where
 * the characters, gears
 * are passed by the user who is willing to play the duel with their choice
 * of characters and
 * gears. The only difference from previous demo is that the user can
 * provide/add one gear at a
 * time to the battlefield so that characters can equip them and upgrade
 * themselves. Here the user
 * has to define the gears (max of 10 gears can be added for each player to
 * choose from) before
 * the battle is instantiated and these character and empty list of gear
 * objects are passed as
 * arguments (Character 1, Character 2, Gear List 1, Gear List 2). Then the
 * user can add gears to
 * help Character 1 by using the method addGearToList1() and Character 2 by
 * using the method
 * addGearToList2().
 *
 * @throws Exception if more than ten gears are provided in the battlefield
 */
public static void demo3() throws Exception {
    Character char1 = new Character(new HitPoint(9, 8), CharacterType.TECH,
    "Tony Stark");

    Character char2 = new Character(new HitPoint(13, 10),
    CharacterType.SUPER_BEING, "Thanos");

    ArrayList<Gear> gearList1 = new ArrayList<>();

    ArrayList<Gear> gearList2 = new ArrayList<>();

    Battle endGame = new Battle(char1, char2, gearList1, gearList2);
    endGame.addGearToList1(new HandGear(new HitPoint(5, 2), "Repulsor Gun"));
    try {
        endGame.prepareRound();
    } catch (Exception e) {
        System.out.println("Error in preparing Game: " + e);
    }
    endGame.playGame();

    System.out.println(endGame.toString());
}
```

Output: (copy pasted from the IntelliJ output)

Before Sorting:



1. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND

Element List
for character
1

After Sorting:

1. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND

Before Sorting:

Element List
for character
2

After Sorting:

Tony Stark has 14 and 10 defense strength.

Effective HP

Thanos has 13 and 10 defense strength.

Tony Stark stats:

Tony Stark has Base Attack Points: 9 and Base Defense Points: 8.

Player 1
Stats

Tony Stark's Arsenal:

1. Gear Name: Repulsor Gun -- Defense Strength: 2; Attack Strength: 5; Gear Type: HAND

Thanos stats:

Thanos has Base Attack Points: 13 and Base Defense Points: 10.

Thanos's Arsenal:

Player 2
stats

The battle ends with Tony Stark having 3 units of damage and Thanos having 4 units of damage.

Net Damage

Tony Stark, Won the battle!