

LAPORAN PRAKTIKUM KUIS 1

Mata Kuliah : Praktikum Pemrograman Berbasis Objek

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Kelas :TI 2D

**PROGRAM STUDI TEKNIK INFORMATIKA
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1. Tujuan

- Menerapkan konsep **inheritance**, **polymorphism**, dan **encapsulation** dalam pemrograman berorientasi objek.
- Membuat simulasi game sederhana dengan pertarungan antara player dan monster.
- Mengimplementasikan fitur tambahan sesuai perintah kuis.

2. Deskripsi Program

Program ini merupakan game petualangan sederhana dengan sistem pertarungan antara **Player** (Ilham) dan beberapa musuh (**Monster** dan **BossMonster**).

- Character sebagai superclass yang menyimpan atribut umum.
- Player memiliki tambahan atribut level, dapat menyerang dan melakukan **healing**.
- Monster menyerang dengan damage acak.
- BossMonster memiliki serangan spesial dengan **damage 2x lipat**.
- Pertarungan berlangsung hingga salah satu karakter kalah.

3. Kode Program

3.1. Character.java

```
1  public abstract class Character {
2      private String name;
3      private int health;
4      private int attackPower;
5
6      public Character(String name, int health, int attackPower) {
7          this.name = name;
8          this.health = health;
9          this.attackPower = attackPower;
10     }
11
12     public String getName() { return name; }
13     public int getHealth() { return health; }
14     public void setHealth(int health) { this.health = health; }
15
16     public void takeDamage(int damage) {
17         health -= damage;
18         if (health < 0) health = 0;
19         System.out.println(name + " took " + damage + " damage! Remaining health: " + health);
20     }
21
22     public abstract void attack(Character target);
23 }
24
```

3.2 Player.java

```

1 public class Player extends Character {
2     private int level;
3
4     public Player(String name, int health, int attackPower, int level) {
5         super(name, health, attackPower);
6         this.level = level;
7     }
8
9     public void attack(Character target) {
10        int damage = super.getHealth() / 10 + level; // damage dipengaruhi level
11        System.out.println(getName() + " attacks with sword! Damage: " + damage);
12        target.takeDamage(damage);
13    }
14
15    public void heal() {
16        int healAmount = 20;
17        setHealth(getHealth() + healAmount);
18        System.out.println(getName() + " heals for " + healAmount + "! Current health: " + getHealth());
19    }
20 }
21

```

3.3 Monster.java

```

1 public class Monster extends Character {
2     private String type;
3
4     public Monster(String name, int health, int attackPower, String type) {
5         super(name, health, attackPower);
6         this.type = type;
7     }
8
9     @Override
10    public void attack(Character target) {
11        int damage = (int)(Math.random() * 10) + 5; // random damage
12        System.out.println(getName() + " (" + type + ") attacks ferociously! Damage: " + damage);
13        target.takeDamage(damage);
14    }
15 }
16

```

3.4 BossMonster.java

```

1 public class BossMonster extends Character {
2     private String type;
3
4     public BossMonster(String name, int health, int attackPower, String type) {
5         super(name, health, attackPower);
6         this.type = type;
7     }
8
9     @Override
10    public void attack(Character target) {
11        int damage = (int)(Math.random() * 15) + 10;
12        damage *= 2; // serangan 2x lipat
13        System.out.println(getName() + " (" + type + ") unleashes a SPECIAL attack! Damage: " + damage);
14        target.takeDamage(damage);
15    }
16 }
17

```

3.5 GameTest.java

```
1 public class GameTest {
2     public static void main(String[] args) {
3         Player ilham = new Player("Ilham", 100, 20, 5);
4         Monster goblin = new Monster("Goblin", 80, 15, "Goblin");
5         BossMonster dragon = new BossMonster("Dragon", 200, 30, "Dragon");
6
7         Character[] enemies = {goblin, dragon};
8
9         System.out.println("=== BATTLE START ===");
10        int turn = 1;
11
12        while (ilham.getHealth() > 0 && (goblin.getHealth() > 0 || dragon.getHealth() > 0)) {
13            System.out.println("\n--- Turn " + turn + " ---");
14
15            // Player menyerang monster pertama yang masih hidup
16            if (goblin.getHealth() > 0) {
17                ilham.attack(goblin);
18            } else if (dragon.getHealth() > 0) {
19                ilham.attack(dragon);
20            }
21
22            // Player bisa heal setiap 3 turn
23            if (turn % 3 == 0) {
24                ilham.heal();
25            }
26
27            // Giliran musuh
28            for (Character enemy : enemies) {
29                if (enemy.getHealth() > 0) {
30                    enemy.attack(ilham);
31                }
32            }
33
34            turn++;
35        }
36
37        System.out.println("\n=== BATTLE END ===");
38        if (ilham.getHealth() > 0) {
39            System.out.println("Ilham wins the battle!");
40        } else {
41            System.out.println("The monsters defeated Ilham...");
42        }
43    }
44 }
45
```

4. Verifikasi Output

1.

```
--- Turn 1 ---
Ilham attacks with sword! Damage: 15
Goblin took 15 damage! Remaining health: 65
Goblin (Goblin) attacks ferociously! Damage: 14
Ilham took 14 damage! Remaining health: 86
Dragon (Dragon) unleashes a SPECIAL attack! Damage: 42
Ilham took 42 damage! Remaining health: 44
```

2.

--- Turn 2 ---

Ilham attacks with sword! Damage: 9

Goblin took 9 damage! Remaining health: 56

Goblin (Goblin) attacks ferociously! Damage: 12

Ilham took 12 damage! Remaining health: 32

Dragon (Dragon) unleashes a SPECIAL attack! Damage: 28

Ilham took 28 damage! Remaining health: 4

3.

--- Turn 3 ---

Ilham attacks with sword! Damage: 5

Goblin took 5 damage! Remaining health: 51

Ilham heals for 20! Current health: 24

Goblin (Goblin) attacks ferociously! Damage: 8

Ilham took 8 damage! Remaining health: 16

Dragon (Dragon) unleashes a SPECIAL attack! Damage: 28

Ilham took 28 damage! Remaining health: 0

4.

=== BATTLE END ===

The monsters defeated Ilham...