Activity 2.2 - Lab Algorithm and Data Structures

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1. Source Code:

```java
public class TestMonster {
    public static void main(String[] args) {
        //create instances of three monsters (m1,m2,m3) and initialize their fields
        Monster m1 = new Monster();
        m1.name = "Jono";
        m1.hp = 100;
        m1.mp = 10;
        m1.item = "Pentungan";

        Monster m2 = new Monster();
        m2.name = "Ucup";
        m2.hp = 150;
        m2.mp = 25;
        m2.item = "Sarung Wadimor";

        Monster m3 = new Monster();
        m3.name = "Asep";
        m3.hp = 40;
        m3.mp = 120;
        m3.item = "Golok";

        //declare an array monsters with type Monster and size = 3
        Monster[] monsters = new Monster[3];

        //initialize the array with m1,m2,m3
        monsters[0] = m1;
        monsters[1] = m2;
        monsters[2] = m3;

        //print all monsters in the array
        for(int i = 0; i < monsters.length; i++) {
            System.out.println("A monster has appeared! " + monsters[i].name + "
HP:" + monsters[i].hp + " MP:" + monsters[i].mp);
        }
    }
}
```

Result:

```
PS C:\Users\themi\Downloads\java-prak-asd\second-meet\hello>  d
Program Files\Java\jdk-18\bin\java.exe' '-XX:+ShowCodeDetailsIr
meet\hello\bin' 'TestMonster'
A monster has appeared! Jono HP:100 MP:10
A monster has appeared! Ucup HP:150 MP:25
A monster has appeared! Asep HP:40 MP:120
PS C:\Users\themi\Downloads\java-prak-asd\second-meet\hello>
```

2. Commented the Monster[2] = m3;

```
//initialize the array with m1,m2,m3
monsters[0] = m1;
monsters[1] = m2;
// monsters[2] = m3;
```

Result:

```
A monster has appeared! Jono HP:100 MP:10
A monster has appeared! Ucup HP:150 MP:25
Exception in thread "main" java.lang.NullPointerException: Cannot read field "name" because "monsters[i]" is null
        at TestMonster.main(TestMonster.java:32)
PS C:\Users\themi\Downloads\java-prak-asd\second-meet\hello>
```

This happened because we do not assign the array monster[2] with the value contained in the m3, which referenced the content (name, HP, MP, Item) inside somewhere in memory. Therefore, when running the program to output the content of each array from 0 - 2, since monster[2] is null, an error will be displayed.