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| American University of SharjahSchool of Engineering Department of Computer Engineering  P. O. Box 26666  Sharjah, UAE  **Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **ID : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  | **Instructor:** Omar Arif **Office**: ESB-2178  **Phone**: 971-6-515 4821  **e-mail**: oarif@aus.edu  **Semester**: |

**The quiz open book and notes and you can use the Internet. You are not allowed to consult other individuals or your classmates.**

PLEASE UPLOAD YOUR ANSWER USING THIS **WORD** FILE. DO NOT UPLOAD ANY ZIPPED OR PDF FILE. ONE WORD FILE ONLY.

The question(s) have been written in a manner such that it is not possible for two students to have the same solution. Therefore, please refrain from the temptation of copying code and changing order of and names of variables, etc. AUS code of conduct will be strictly enforced, and no violation will be tolerated as per AUS policy. Please note that the AUS code does not discriminate between who copied from whom so it is not advisable to share your solution.

**Q1. (10 points)** You are developing a video game characters. You want to implement a mechanism to allow the character to select an **offensive** or **defensive** strategy depending on the **health points**. The character can **meditate** and if the health points are more than 50, it uses offensive strategy, otherwise it uses defensive strategy.

Use **Strategy Design Pattern** to implement the above behavior.

You must run and provide output on the following program (without any changes to the program). You are not allowed to make any changes to this program

import java.util.Random;

public class Main {

public static void main(String[] args) {

Random r = new Random();

Character c = new Character();

for (int i=0; i<10; i++) {

int healthPoints = r.nextInt(100);

c.setHealthPoints(healthPoints);

c.meditate();

c.executeStrategy();

}

}

}

**Expected Output (emojis are not necessary):**

Performed defensive action 🛡

Performed offensive action ⚔

Performed defensive action 🛡

Performed defensive action 🛡

Performed defensive action 🛡

Performed defensive action 🛡

Performed defensive action 🛡

Performed offensive action ⚔

Performed offensive action ⚔

Performed defensive action 🛡

Please provide 1) formatted code and 2) screenshots of your running program. Not providing a screenshot (with or without errors) will limit your score to below 3/10.

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| **Solution: (Paste formatted code in this box).** |

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| **Solution: (Paste the screenshot in this box).** |

**Grading Rubric:**

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| **0-3** | **4-6** | **7-8** | **9-10** |
| * The program does not compile or run but there is some notion of a solution OR * No screenshot is provided. | * Some of the program works but not fully. * Bad design practices have been used. | * The program partially matches the output provided. * Clean design practices have been followed. | * The program exactly matches the output. * Clean design practices have been followed. |