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| American University of SharjahSchool of Engineering Department of Computer Engineering  P. O. Box 26666  Sharjah, UAE  Failure to put your name and ID will result in a 2-point deduction from you grade.  **Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **ID : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  | **Instructor:** Omar Arif **Office**: ESB-2178  **Phone**: 971-6-515 4821  **e-mail**: oarif@aus.edu  **Semester**: |

COE312

Time: 45 minutes

Total Points: 10

**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) Develop a Java class hierarchy that can help keep track of all students in a university. There are two types of students, Undergraduate Students and Graduate Students. Tuition fee for undergraduate student is AED 2000, and tuition fee for graduate student is AED 4000.

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.

**public** **class** Main {

**public** **static** **void** main(String[] args) {

Student[] students = **new** Student[3];

Student undergraduate1 = **new** UndergraduateStudent();

undergraduate1.setId(1);

undergraduate1.setName("Ali");

undergraduate1.setTuition();

students[0] = undergraduate1;

Student graduate1 = **new** GraduateStudent();

graduate1.setId(2);

graduate1.setName("Ahmad");

graduate1.setTuition();

students[1] = graduate1;

Student graduate2 = **new** GraduateStudent();

graduate2.setId(3);

graduate2.setName("Muhammad");

graduate2.setTuition();

students[2] = graduate2;

**for**(**int** i = 0; i < students.length; i++){

System.***out***.println(students[i]);

}

}

}

**Expected Output:**

Undergraduate student:

Name: Ali

ID: 1

Tuition: AED2000.0

Graduate student:

Name: Ahmad

ID: 2

Tuition: AED4000.0

Graduate student:

Name: Muhammad

ID: 3

Tuition: AED4000.0

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.

**Grading Rubric (out of 10 points)**

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| **0-3** | **4-6** | **7-8** | **9-10** |
| Program does not compile or run. OR  Program is not related to the problem at hand. OR  No screenshot is provided. | * Class hierarchy is correct. AND * Most functions and interfaces are implemented somewhat correctly. AND * Some obvious attributes are missing. | * Class hierarchy is correct. AND * Most functions and interfaces are implemented correctly. AND * Some obvious attributes are missing. | * Class hierarchy is correct. AND * All the functions and interfaces are implemented correctly. AND * All the attributes are mentioned. |

**Solution: (Paste formatted code here).**

**Solution: (Paste the screenshots here).**