National University of Computer & Emerging Sciences, Karachi
Spring-2022, FAST School of Computing
Midterm-2 Examination
April 18, 2022, 08:30 am – 09:30 am

Course Code: CS1002	**Course Name: Programming Fundamentals**
Instructor Name: Mr. Basit Ali , Dr. Usama	
Student Roll No:	**Section:**

Instructions:

- Return the question paper. Do not write anything on question paper, except your ID & Section.
- Read each question completely before answering it. There are **2 questions and 2 pages.**
- In case of any ambiguity, you may make assumptions. However, your assumptions should not contradict any statement in the question paper.
- All the answers must be solved according to the sequence given in the question paper.
- This paper is subjective. Write the answers only on answer sheet.

Time: 60 minutes **Max Points**: 40

Q1: Create a structure ***"Student"*** with the data members (Student ID, Student Name, Assignment, Project, Midterm, Final Exam, Grand Score, Grade, GP). ***24 Marks (6+6+6+6)***

a. Write a code segment that prompts the user to enter the record of 100 students' ID, name, assignment, project, midterm, and final exam marks.

b. Create a function ***"void CalculateTotalScore(struct Student s)"***. The grand score is calculated using the given formula

Grand Score = Assignment (10%) + Project (20%) + Midterm (20%) + Final Exam (50%)

c. Create a method ***"CalculateGrade (…)"*** and ***"CalculatePoints(…)"***. The grade and grade point are calculated according to the following criteria:

Grade	Percentage	Grade Point	Grade	Percentage	Grade Point
A	87 – 100	4.00	C	60 – 65	2.00
B+	80 – 86	3.50	D	50 – 59	1.50
B	72 – 79	3.00	F	Below 50	0.00
C+	66 – 71	2.50			

d. Create a method ***"FindDeanList(…)"*** that stores the list of students with GP 3.5 or above. The records should be stored in descending order of GP.

Sample Inputs & Outputs:

Sample Input: Part A
Enter Student # 1 Record Enter Student ID: 3245 Enter Student Name: Majid Ali Enter Student Assignment Marks: 8 Enter Student Project Marks: 15 Enter Student Midterm Marks: 14 Enter Student Final Exam Marks: 36 …

Sample Output: Part B & C

```
StdID   Student Name   Asgn  Project  Mid   Final  Total  Grade  GP
-------------------------------------------------------------------------------------------------------
3145    Majid Ali      8     15       14    36     73     B      3.00
3264    Nawaz Khan     7     12       11    30     60     C      2.00
3265    Khalil Durani  8     18       18    45     89     A      4.00
…
```

Sample Output: Part D

```
Dean's Award List:
Std ID  Student Name   Grade  GP
-----------------------------------------------
3265    Khalil Durani  A      4.00
3398    Aqeela Javaid  A      4.00
3277    Haider Rizvi   B+     3.50
3264    Nabeel Qureshi B+     3.50
…
```

Q2: Consider the given table, the rows represent the cities, and the columns represent the days. The numbers in the slots shows the temperature of four different cities for a given day. You are required to declare the ***2D array "temperature"*** that would be utilized to store the information given in the table. ***Marks: 16(2+7+7)***

	Mon 0	**Tue 1**	**Wed 2**	**Thu 3**	**Fri 4**	**Sat 5**	**Sun 6**
Karachi 0	32	31	33	34	30	30	30
Lahore 1	30	29	31	28	29	30	30
Peshawar 2	23	25	27	24	26	23	24
Islamabad 3	24	25	24	26	28	24	24

a. Read the data into the ***2D-array*** by receiving the data from user.
b. Write a method ***"HottestDay(int temperature[ ][ ])"*** that would display the hottest day for each city.
c. Write a method ***"AverageTemperature(int temperature[ ][ ])"*** that would display the average temperature of Islamabad for the whole week.

BEST OF LUCK!