FAST

National University of Computer and Emerging Sciences, Karachi
Fall – 2021, FAST School of Computing
Mid Term Examination
9ᵗʰNovember 2021, 11:30am – 1:00pm

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| Course Code:CL1002 | | Course Name: Programming Fundamentals | |
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| Instructor Name : | Hamza Ahmed | | |
| Student Roll No: | K21-3332 | Section No: | 1D |

**Instructions:**

PAPER BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB

- Read each question completely before answering it. In case of any ambiguity, you may make assumptions. But your assumption should not contradict any statement in the question paper.
- Return the question paper.
- Create a folder in D-Drive of your student-id e.g. "**Folder Name should be K20-1292 and save all your .C file there.**
- Cheating in any case will lead to **F-GRADE** directly as per university rules.

Time: 90 min.                                                                       **Max Marks 40 points**

## Question # 1: (If-Else If)                                          *[ Marks: 10 Time:30 mints ]*

Write a program that take your roll number as input find the first two digits and last two digits of the roll number and print the message the number is prime if it is prime else the number is not a prime number. Roll number must be of 4 digits.

```
Enter your roll_no: 2113

First two: 21
Last two: 13
Multiplication of 21 and 13 is: 273
The number is not a prime number
```

## Question # 2: (Switch Case)                                          *[ Marks: 15 Time:30 mints ]*

You are working as a Data Scientist in xyz company which works on 3 types of data i.e numerical, textual and symbols. Data handling is a tough task, you are required to make a C program using switch statements which should be able to do the following tasks.

1 for Numerical
2 for Textual
3 for Symbols

- If data is Numerical, program should do the following task:
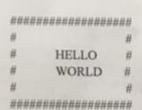          Check if number is Armstrong or not.
  Armstrong number is a number that is equal to the sum of cubes of its digits.
  For example 153 is an Armstrong number. $153 = 1^3 + 5^3 + 3^3$
- If data is Textual, program should do the following task:
          Take 5 characters and check if it's a palindrome or not.

- If data is Symbols, program should do the following task:
  Whatever symbol user inputs, it should draw a square of it
  Enter symbol : #

```
####################
#                  #
#      HELLO        #
#      WORLD        #
#                  #
####################
```

## Question # 3:   (Loop)

DECS is organizing a Pakistan tour. Freshmen would have 10% discount, Sophomores have 15% discount, Juniors have 20% discount, and Seniors have 25% discounts.
Your program should be able to work on any ticket price. It shouldn't be hard coded.

Make a C program to display a menu to the user. He should be able to purchase as many tickets as he wants. Program should display the summary of tickets purchased and total bill along with the total discount.

```
Welcome to DECS Annual Tour
Ticket price is 30000/ person
Enter your batch year or -1 to exit: 20
Enter your batch year or -1 to exit: 19
Enter your batch year or -1 to exit: 19
Enter your batch year or -1 to exit: 18
You bought 1 ticket of batch 20
          2 tickets of batch 19
          1 ticket of batch 18.
Your Total Bill is: 120000
Your Discount is: 25000
You Net Bill is : 95000
```