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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| final design | **Course:** | **Programming Fundamental Lab** | **Code:** | **CL118** |
| **Program:** | **BS (Computer Science)** | **Semester:** | **Fall 2018** |
| **Duration:** | **3 hrs** | **T. Marks:** | **40** |
| **Date:** | **Tuesday 11-12-2018** | **Weight** | **40** |
| **Section:** | **F** | **Page(s):** | **1** |
| **Exam:** | **Lab Final** |  |  |

**Instructions/Notes:**

* Use of the internet, notes, codes, lab manuals, and flash drives is strictly prohibited.
* Plagiarism will result in **F** grade in lab.
* Code must be **indented properly**, failure to comply will incur a penalty.
* Submit the folder in the format L18-1234.

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**Question # 1: Sum of the digits in C-String (10 marks)**

Write a program which take series of the digit numbers with nothing separating them in a C-string.

The program should display the sum of all the single-digit numbers.

Example,

Enter the input = 12345

Sum of the single digits = 15

**Question # 2: Room Booking in Hotel (15 marks)**

Write a program that can be used to assign seats for a hotel. The hotel has 8 floors with 6 rooms in each floor. Floor 1 & 2 are first class, the remaining floors are economy class. Also, floor 1 to 5 are non-smoking. Ask the user to enter the following information.

* Type (First class or Economy)
* For Economy class, Smoking zone or non- smoking zone.

Keep taking the new information from customers and display the table (below) and to exit the program press -1.

Allocate the room according to the desired choice. And if no space is available then prompt an error message.

Display the following reservation plan on the screen.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Floor1 | X | X | \* | \* | \* | \* |
| Floor2 | \* | \* | \* | \* | \* | X |
| Floor3 | \* | \* | X | \* | X | \* |
| Floor4 | \* | X | X | X | X | X |
| Floor5 | \* | \* | \* | \* | X | \* |
| Floor6 | X | \* | \* | \* | \* | \* |
| Floor7 | \* | \* | \* | \* | \* | X |
| Floor8 | X | X | X | \* | \* | X |

Where X indicates it is occupied and \* represents it is available.

**Question # 3: Dynamic allocation (15 marks)**

Write a function Findsubstr() which takes two parameters i.e. two character pointers pointing to a two character arrays; this function returns true if second array is a substring of first array, and returns false otherwise.

Example: (this is just an example you have to use dynamic memory allocation for arrays)   
char\* str1 = “iamprogrammer”;  
char\* str2 = “pro”;  
bool flag = Findsubstr (str1,str2); // returns true