National University of Computer and Emerging Sciences, Lahore Campus

	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:		**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.

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
```