

National University of Computer and Emerging Sciences, Lahore Campus



Course:	PF Lab	Course Code:	CL-118
Program:	BS (Computer Science)	Semester:	Fall 2019
Duration:	150 Minutes	Total Marks:	60(30+30)
Paper Date:	27 Nov 2019	Weight	40%
Section:	All	Page(s):	2
Exam:	Final Term	Reg. No	

Instruction/Notes:

1. Understanding the question paper is also part of the exam, so do not ask any clarification.
2. No USB's, PHONES and INTERNET are allowed.
3. Talking/Discussion is not allowed. It is your responsibility to protect your code and save it from being copied. If you don't protect it all matching codes are considered copy/cheating cases.
4. Submission Path is:

Question # 1:

You need to write a c++ program which asks the user to enter the data in character array. Then you ask the user to enter a pattern to search.

You need to implement these functions in order to meet the given sample output.

```
int findPattern (char str [], char pattern []);
```

This function receives the array and finds the pattern in str. This function makes a new character array to store a word from pattern. When a word is formed, it calls the function findSubString with the array, substring and an index value, from where the search should start.

```
int findSubString (char arr [], char sub [], int index);
```

This function receives an array of characters and a substring to be searched and an index value, from where the search will start. This function returns the index where the substring is found else it returns -1.

Sample I/O:

Input:

```
Str:      Hello. I am Muslim. I am going to Lahore. Hello.
Pattern:   Hello*Lahore*to
```

Output: Pattern Not Found.

Input:

```
Str:      Hello. I am Muslim. I am going to Lahore. Hello.
Pattern:   Hello*am*to
```

Output: Pattern Found.

Note: Star (*) denotes that there may be some characters between these words.

Question # 2:

In this question, you have to implement some operations for HugeInt. Which can handle integers up to (maximum) 20 decimal digits.

You need to implement these functions in order to meet the given sample output.

```
int getHugeInt (char arr [], int HugeInt []);
```

Takes a character array as input, converts the array to int array and returns the length.

Hint: For our ease, put every value in integer array. To take number from character array is like:

```
char c = '5'; int num = c - 48;
```

Note: The integers can be positive only.

```
void multiply (int HugeInt1[], int HugeInt2[], int result [], int s1, int s2);
```

This function receives two HugeInt arrays and multiply them and store the result in result array. The size you need to consume in result array is (s1 + s2).

```
void subtract (int HugeInt1[], int HugeInt2[], int result [], int s1, int s2);
```

This function receives two HugeInt arrays and subtract HugeInt2 from HugeInt1 and store the result in result array. The size you need to consume in result array is (s1).

Write a main function which creates three int arrays with maximum size 20. Also takes input in character array and passes to getHugeInt, which update a HugeInt array.

Sample I/O:

Enter Number1: 123

Enter Number2: 2

Multiply Result is: 0246

Subtract Result is: 121