Week - 1 Programming Assignments

Arrays, Strings & Pointers

Problem 1: Array

Given an array 'arr', determine the second largest number in the array

Constraints:

- The first input is the length of the array
- The following inputs are the numbers in the array

Example 1:

|Input: 3 1 2 3
|Output: 2

Example 2:

|Input: 5 1 3 6 4 2
|Output: 4

```c
}#include <stdio.h>

//Write a program to determine the second(2nd) largest number in the array
int main(){
    int i, n, arr[10];
    int large…

    scanf("%d", &n);

    for(i=0;i<n;i++)
    {
        scanf("%d", &arr[i]);
    }…

    printf("%d", ?);
    return 0;
}
```

Problem 2: String

Given a string ‘s’, determine the length of the string

Constraints:

- Do not use the ‘strlen’ function.
- The input has to be one word.

Example 1:

|Input: HELLO
|Output: 5

Example 2:

|Input: GOODLUCK
|Output: 8

```c
#include <stdio.h>
//Write a program to determine length of a string
int main(){
    int i, n;
    ? arr[10];
    …
    printf("%d",n);
}
```

Problem 3: Pointer

Given a pointer 'ptr', allocate space to corresponding amounts of numbers(1-9) into the pointer space

Constraints:

- You must use malloc() to allocate space for the pointer
- The Output must be taken from the pointed space

Example 1:

|Input: 3
|Output: 1 2 3

Example 2:

|Input: 5
|Output: 1 2 3 4 5

```c
#include <stdio.h>
#include <stdlib.h>

//Write a program to allocate space and fill it with numbers (1-9)
int main(){
    int i, n;
    scanf("%d",&n);

    ? *ptr = malloc(n * sizeof(?));
    …
    free(ptr);
    ptr=NULL;
    return 0;
}
```