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Launchpad

Lecture - 4

Programming
Fundamentals - 3

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Any doubts?

Data types – size and range!

Type	Typical Bit Width	Typical Range
char	1byte	-127 to 127 or 0 to 255
unsigned char	1byte	0 to 255
signed char	1byte	-127 to 127
int	4bytes	-2147483648 to 2147483647
unsigned int	4bytes	0 to 4294967295
signed int	4bytes	-2147483648 to 2147483647
short int	2bytes	-32768 to 32767
unsigned short int	Range	0 to 65,535
signed short int	Range	-32768 to 32767
long int	4bytes	-2,147,483,647 to 2,147,483,647
signed long int	4bytes	same as long int
unsigned long int	4bytes	0 to 4,294,967,295
float	4bytes	+/- 3.4e +/- 38 (~7 digits)
double	8bytes	+/- 1.7e +/- 308 (~15 digits)
long double	8bytes	+/- 1.7e +/- 308 (~15 digits)

Test ?

A person wants to go from origin to a particular location, he can move in only 4 directions(i.e East, West, North, South) but his friend gave him a long route, help a person to find minimum Moves so that he can reach to the destination.

Input – NESNWES

Output – E

You need to print the lexicographically sorted string. Assume the string will have only 'E' 'N' 'S' 'W' characters.

E.g – SSSNEEEW

output – EESS

Other language constructs

- do while
- switch case
- Tertiary operator (? :)

Time to talk about Functions?

So function definition looks like:

```
returntype function-name(parameters if any) {  
    declarations;  
    statements;  
}
```

Lets move some of our
previous code to functions

Why do we need functions?

Scope of Variables?

Call By Value?

Time for Arrays!

What is an Array?

An array can be defined as number of memory locations, each of which can store the same data type and which can be references through the same variable name.

Lets write some code

- Read 10 numbers and print them in reverse order
- Largest number in the Array
- Linear Search through array
- Selection Sort

Bubble Sort?

Binary Search?

Time to try?

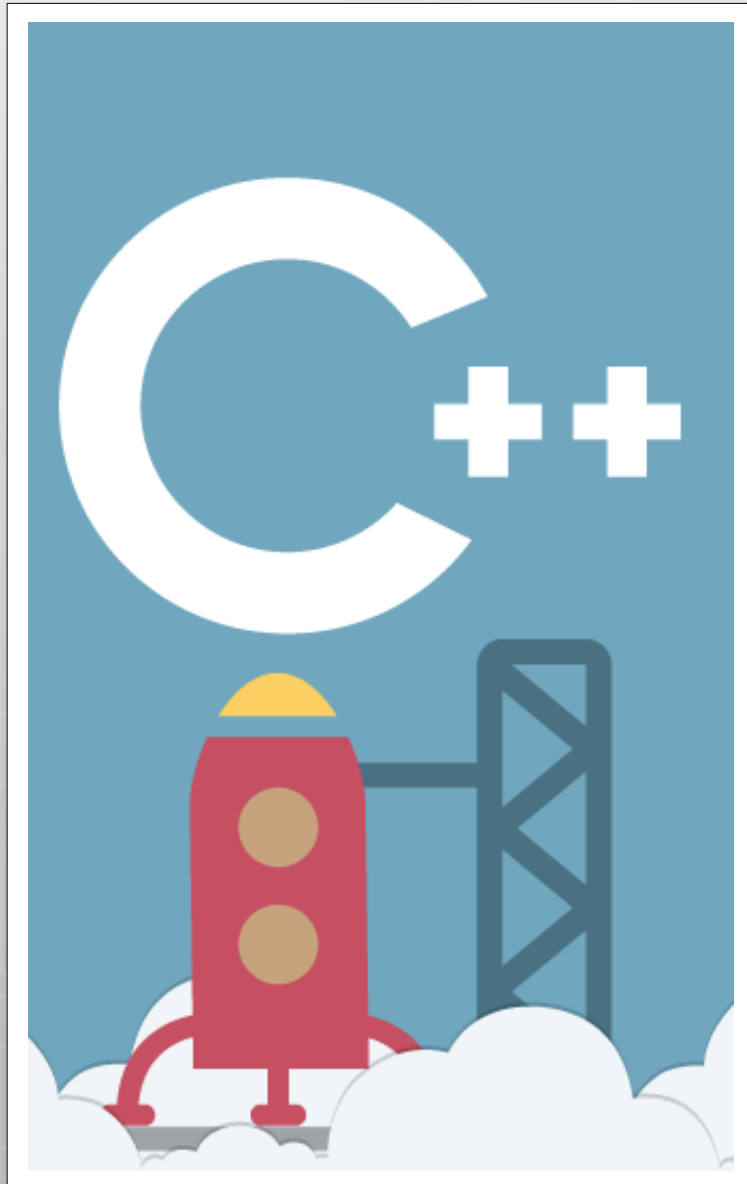
- Write a program to print frequencies of all the characters in the input
- Bubble Sort
- Write a function to return median of two sorted arrays of n elements each

Time to try?

- Binary Search
- Merge two sorted arrays into a third array
- Given an array and a number x . Find pairs of array elements which sum to x .

What is next class about?

- Arrays contd..



Thank You!

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