**Lecture – 1**

1. Introduction
2. Variables
3. Datatypes

* Int
* Float
* Char
* Double

String: a collection of characters

Note: [collection of characters] / char name[] = “Raze”; a little bit different than other data types because we can’t modify or give them new values to the containing variable. Besides, we can modify other data-types variables.

1. Printf --- A function

* % is a format specifier. | int %d, float %f, string %s, double %f , char %c

1. Working with numbers

Math functions

* pow(x,y) | x^y
* sqrt(x) | x = square of root
* ceil(2.58) |3 | round up the number
* floor(5.78) |5 | round down the number

NB: these functions will need %f to print

1. constant

> constant is a special type of variable that can’t be modified.

Ex:

--- const int x = 10;

--- printf( “ hello world! ” );

--- printf(“ %d ”, 5);

1. getting user input

NB: while dealing with double datatype | in printf - %f | in scanf - %lf

> &variable – pointer

> fgets(variable, limit, stdin ) – more like scanf | can only take the whole line of strings but can’t work for int, char etc

> issue: when we use fgets() it prints a new line.

> use fgets() first then use string, otherwise it doesn’t work.

|| **char** s[100];

    scanf("%[^\n]%\*c", &s);

takes string input

NB: scanf(“ %c”, variable) | definitely need space after the quotation mark or it won’t work!

**Lecture 2**

1. Calculator
2. Array

> Variable can store a single value whereas an array can store multiple values of the same data type.

1. Function

> Function is a collection of code that is used for a specific task or purpose.

> void | this function isn’t going to return any information.

1. Return Statements

> printf() function doesn’t work if it is after return 0

> function prototyping | that allows to find the function if it is written after the main function.

1. If statements

>If statement is a programming structure that helps a program to make decisions.

14. better calculator

15. switch statement

> it allows to compare one value to other different values

>There are some rules to keep in mind while writing switch statements: The expression in the switch can be a variable or an expression - but it must be an integer or a character.

16. struct

> Struct is a data structure where we can store groups of data types. Struct name capital

> sting is a collection of characters that is an array and we can’t insert the value like a normal way.

>string copy function | strcpy()

Ex : strcpy(student1.name, "raze");

17. while loop

>if the condition of while loop is true then it allows to run the body.

22. Memory addresses

> all the data containing variables are stored in a physical memory called RAM [random access memory].

> Every variable has an individual memory address. When C refers to a variable’s value, it’s basically using the memory address where the variable’s value is stored inside the physical memory.

> C or computer use these addresses when it needs to access these values.

23. Pointer | Memory address > physical Memory address in memory[RAM]

Pointer - &variable

> Pointer is basically just a type of data that we can use inside of our program .

> Memory address refers to a physical address inside of our computer memory.

> To print pointer | %p

24. dereferenceing pointer