Basics of C programming
Lecture-01

Presented by-
Mst. Rashida Akhtar
Asst. Professor,
Dept. of CSE, VU

rashida@vu.edu.bd

What is a program

- A sequence of instructions that a computer can interpret and execute.

- A program is something that runs on your computer.
- MS Word, Power point, Excel are all computer programs

rashida@vu.edu.bd

C Program (Definition)

- **C is a structured or procedural programming language.**

- **It was initially developed by Dennis Ritchie in the year 1972**

- **It was mainly developed as a system programming language to write an operating system.**

Overview of C

- **Program:**

A program is a specific set of instructions to perform a specific task.

- **Level of Programming Language:**

➢ High-level programming language

   Example: C++,JAVA,PHP and Python

➢ Mid-level programming language

   Example: C, Fortran, BCPL and ALGOL

➢ Low-level programming language

   Example: Assembly language
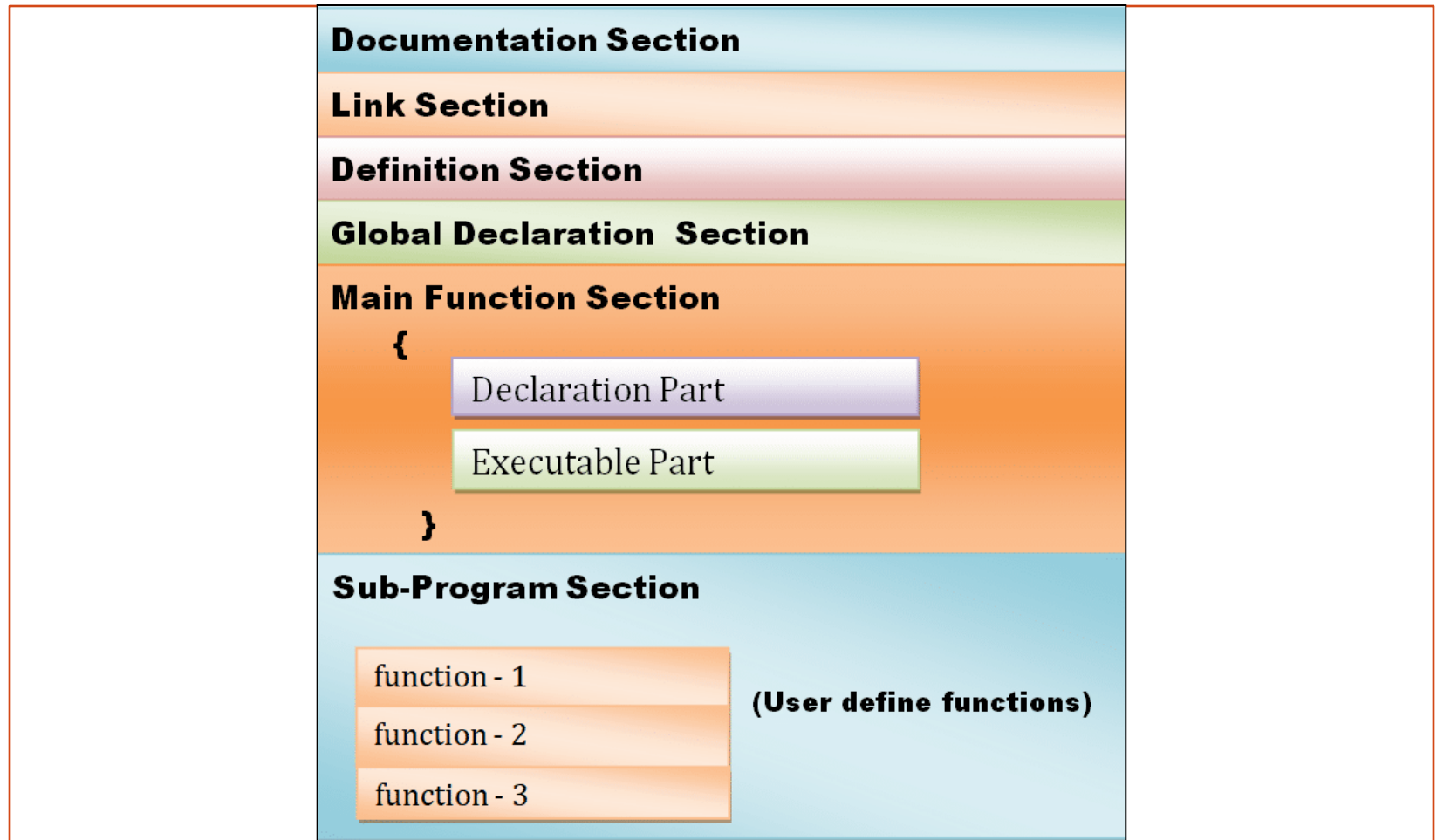
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C is Structured Programming

➢ **C is called structured modular programming language** because while solving large and complex problem, C programming language divides the problem into **smaller modules called functions**.

➢ Each of these functions has **specific job**. And entire problem is solved by collecting such **functions or smaller modules**.
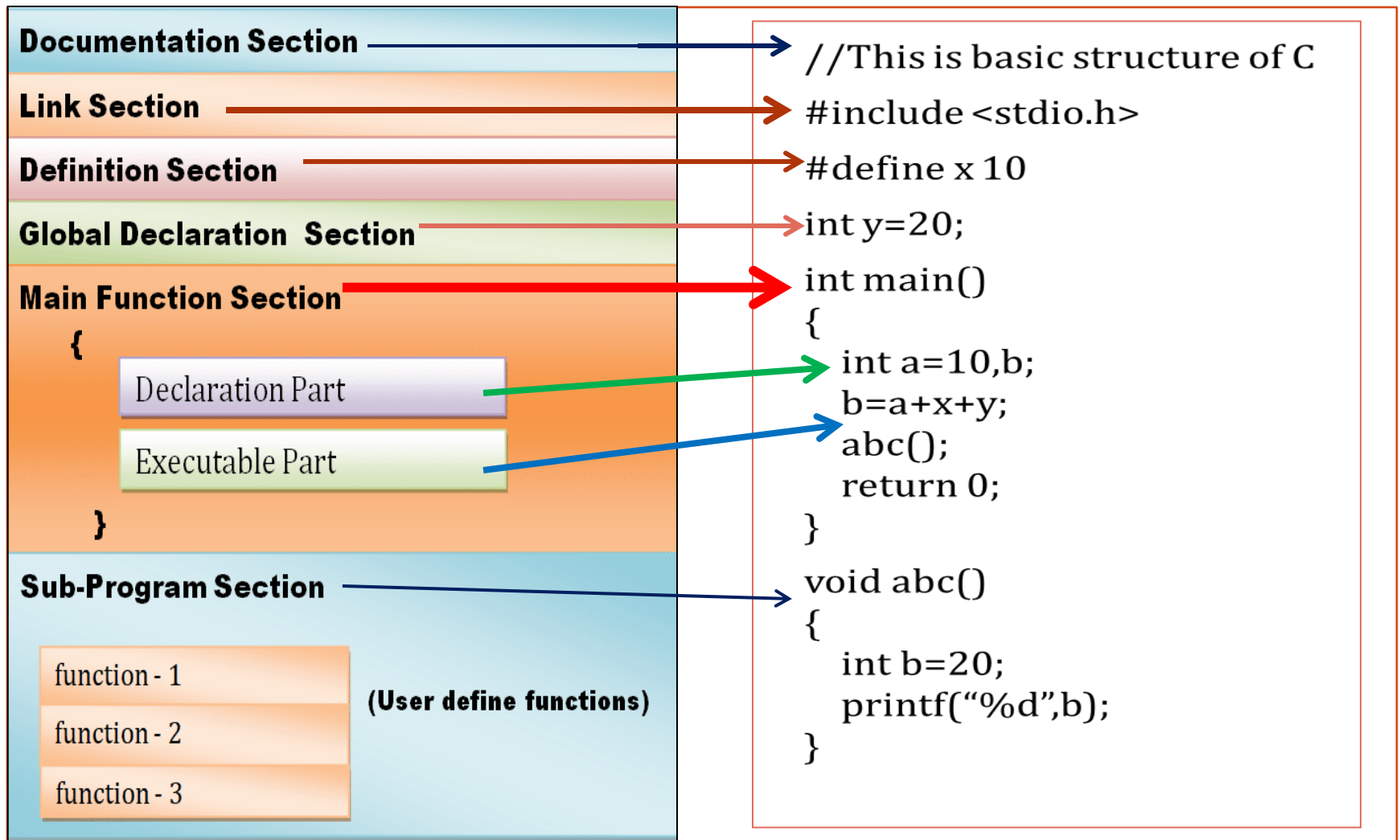
Importance of C

- C is robust language and has **rich set of built-in functions, data types and operators** which can be used to write any complex program.

- C is considered as **middle level language** so it is well suited for writing both **system software and application software.**

- **C is highly portable.**

- **C language is well suited for structured programming.**

- **C is a machine independent language.**

- **C has the ability to extend itself**

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Basic Structure of C

Documentation Section

Link Section

Definition Section

Global Declaration Section

Main Function Section
   {

       Declaration Part

       Executable Part

   }

Sub-Program Section

   function - 1

   function - 2   **(User define functions)**

   function - 3

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Basic Structure of C(Example)

Documentation Section	//This is basic structure of C
Link Section	#include <stdio.h>
Definition Section	#define x 10
Global Declaration Section	int y=20;

Main Function Section
{
   Declaration Part
   Executable Part
}
	int main()
	{
	   int a=10,b;
	   b=a+x+y;
	   abc();
	   return 0;
	}

Sub-Program Section
function - 1
function - 2
function - 3
(User define functions)
	void abc()
	{
	   int b=20;
	   printf("%d",b);
	}

Structure of C Program

Structure of C Program

Header	#include <stdio.h>
main()	int main() {
Variable declaration	int a = 10;
Body	printf("%d ", a);
Return	return 0; }

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Structure of C Program

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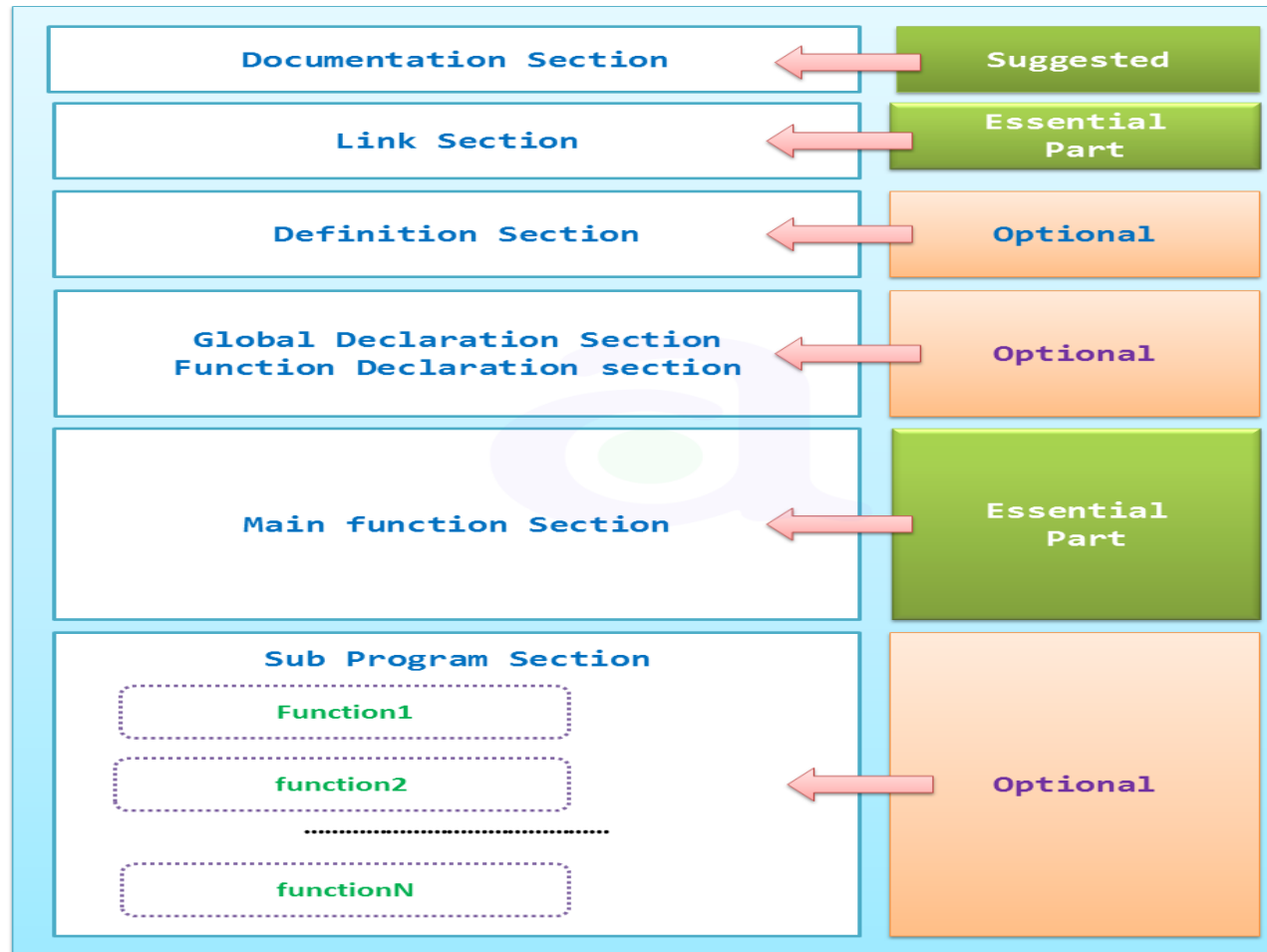
samp.c

```c
#include <stdio.h>

int main()
{
    printf("Hello!\n");
    return 0;

}
```

samp.exe

```
101001011010
00100100010
001010101110
10010110101
11101010100111001
10101001010111110
10101101101001001
10101000111101011
```

C compiler

Compiler converts human readable language to a language which is understandable by the operating system/hardware

The C compiler takes source code (samp.c) as input and turns it into machine readable form.