Re-create yourself

QUEST
INNOVATIVE SOLUTIONS

1st program in c

```
//This is 1st c  program

#include<stdio.h>
Void main()
{
printf(“Hello world”);
}
```

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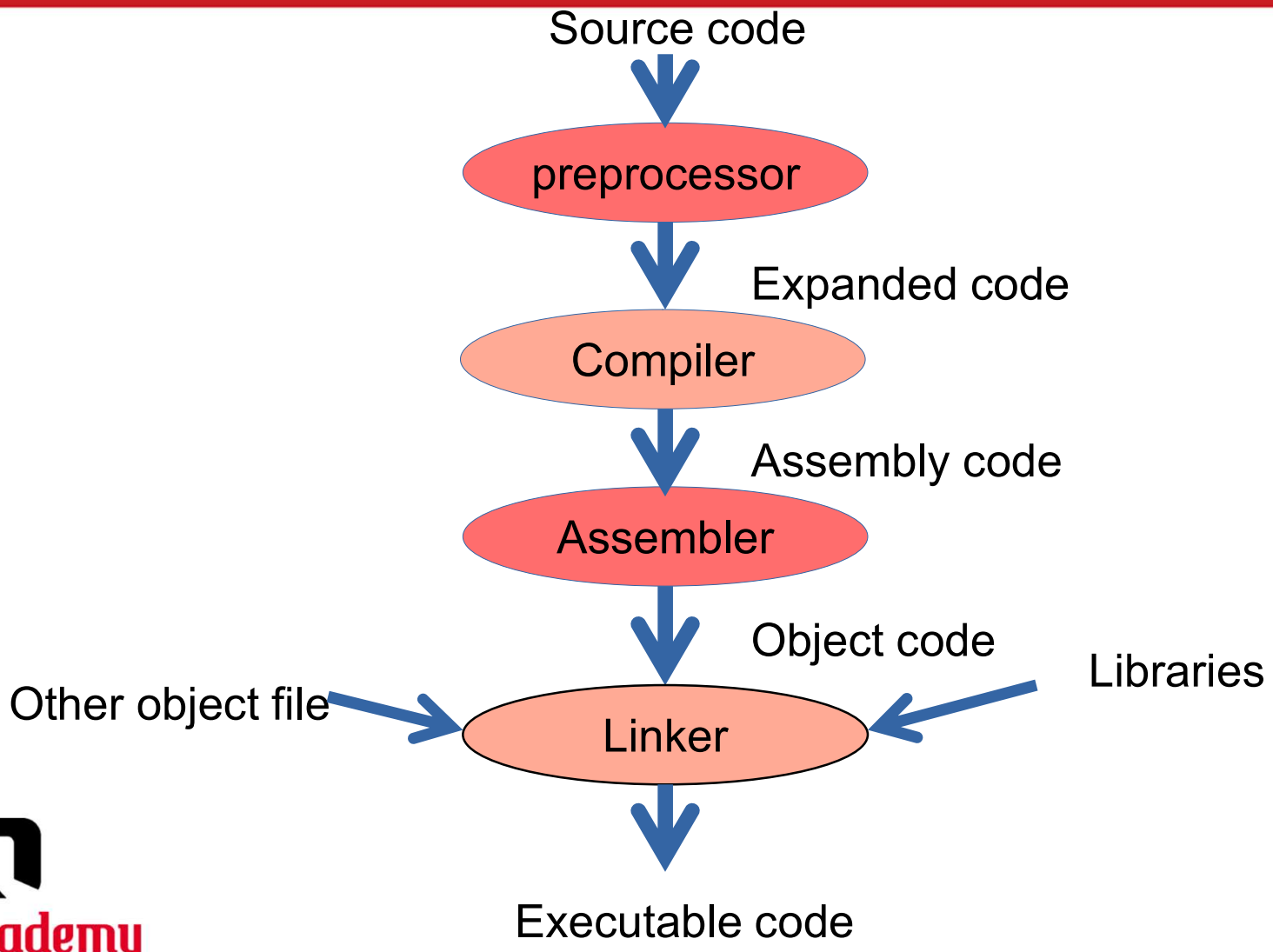
- #include <stdio.h> includes the standard input output
- The main() function is the entry point of every program
- The printf() function is used to print data on the

Compilation process in c



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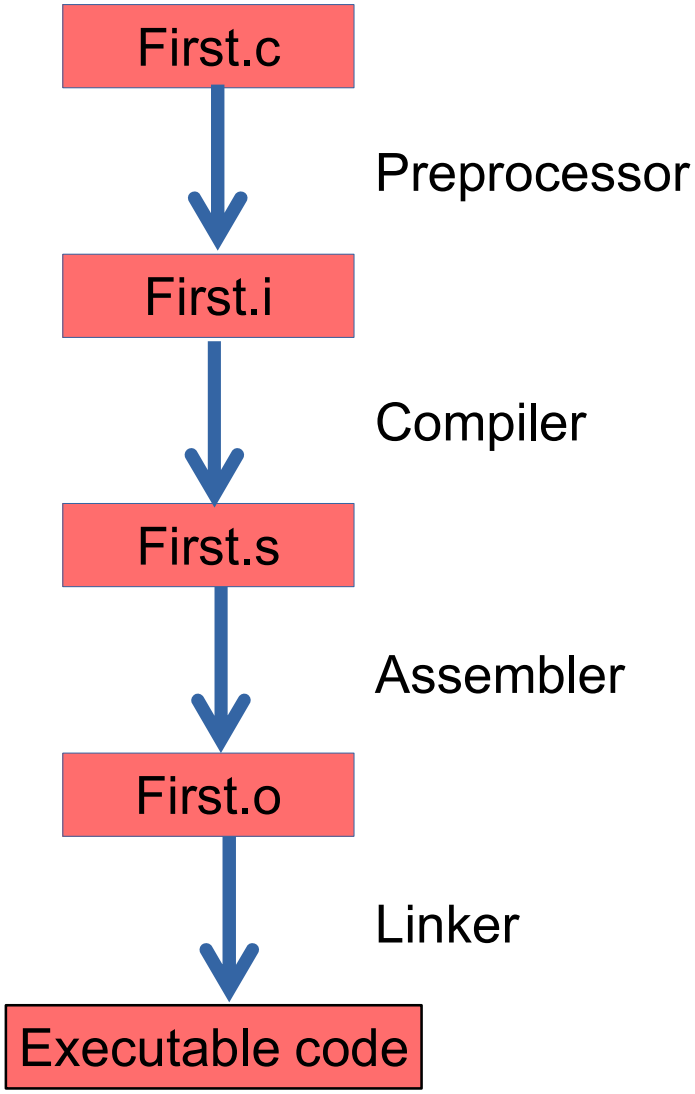
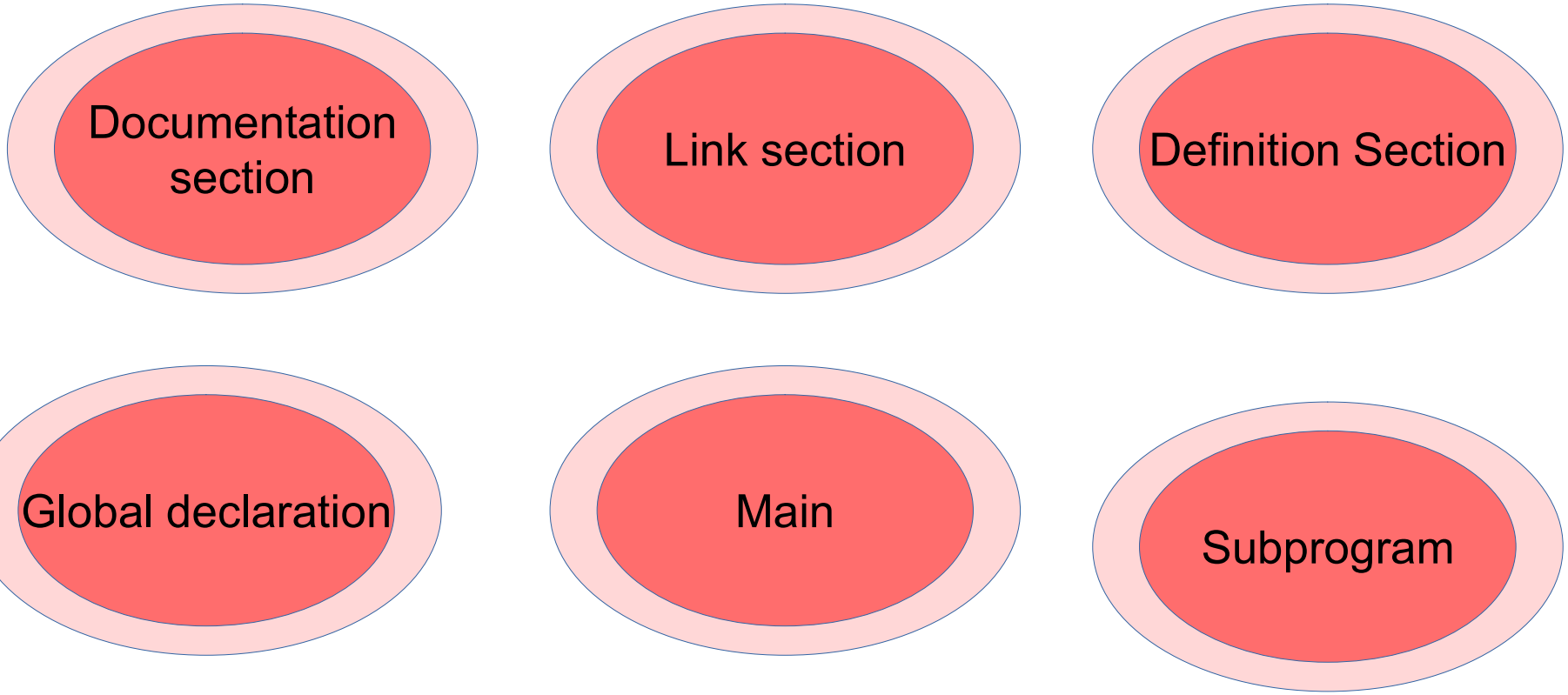


- Firstly, the input file, i.e., First.c, is passed to the preprocessor, and the prep
- The expanded source code is passed to the compiler, and the compiler con
- This assembly code is then sent to the assembler, which converts the asse
- After the creation of an object code, the linker creates the executable file. T

Structure of C



Documentation section — //This is a sample program

link/Header file section — #include<stdio.h>
#include<conio.h>

Definition section — #define Max 100

Global declaration — void sum()

Main —
```
Int main()
{
Sum();
printf("Max=%d",Max);
Return 0;
}
```

Subprogram —
```
void sum()
{
}
```

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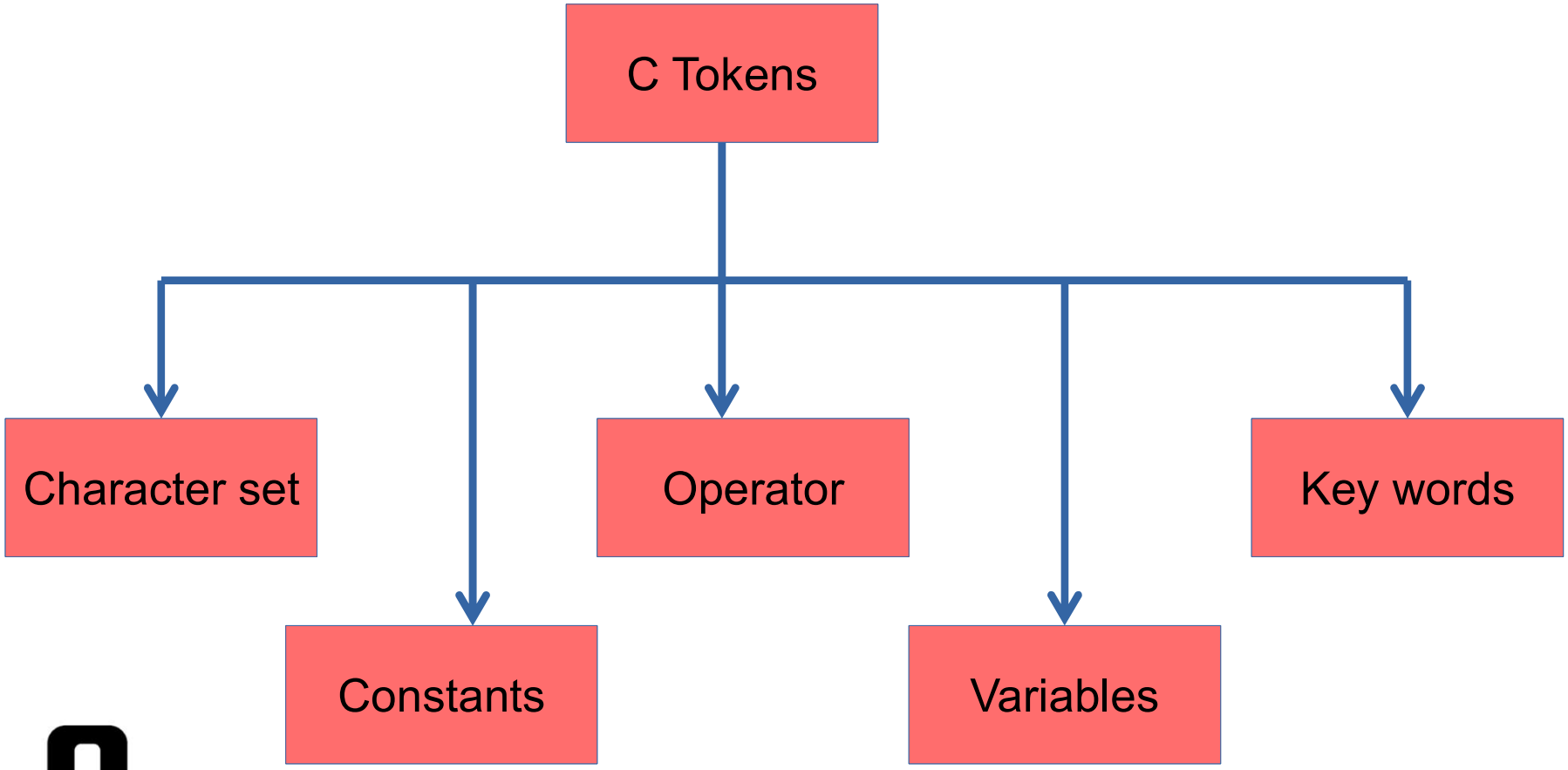
C Tokens

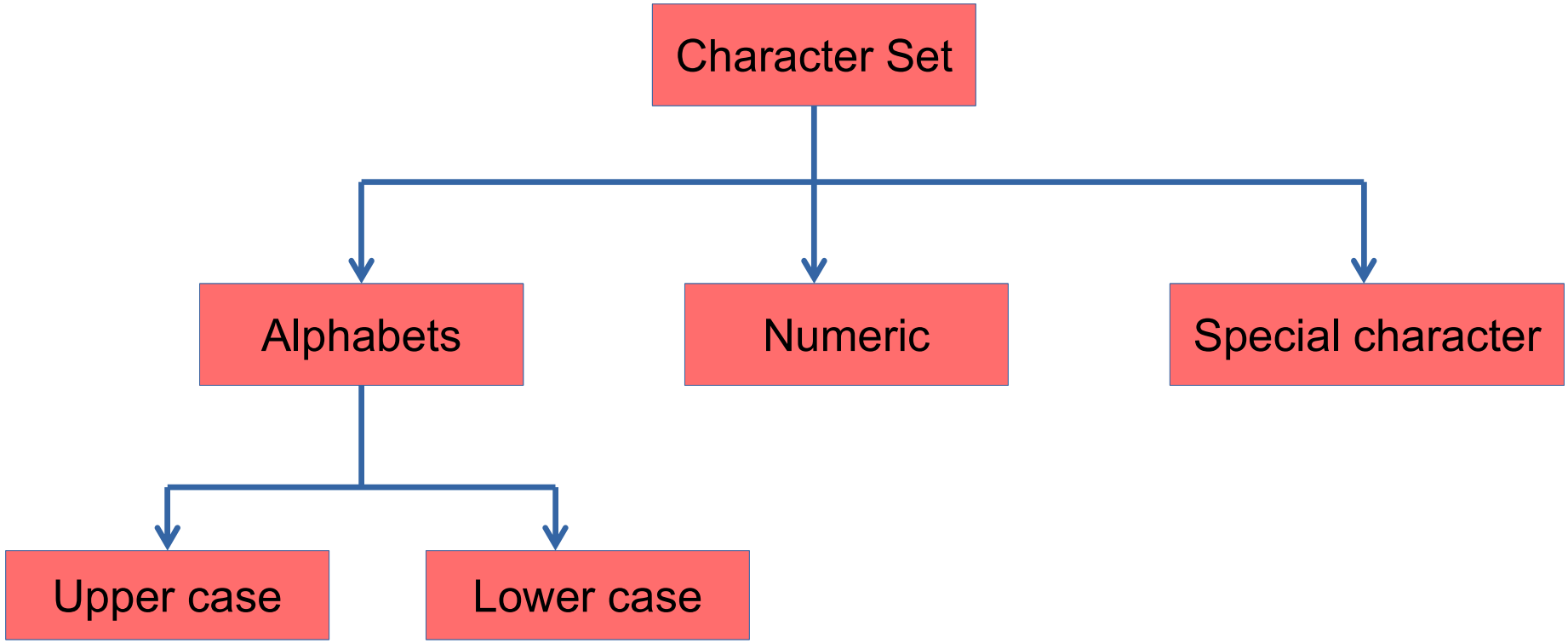
➢Tokens in C is the most important element to be used in creating a program in C. W

➢ For `example, we cannot create a sentence without using words; similarly, we can

➢Therefore, we can say that tokens in C is the building block or the basic componer



Character set



Key words

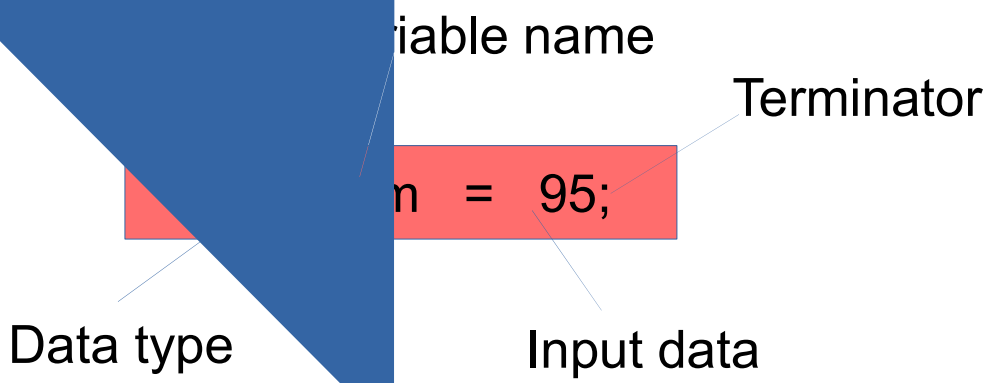
- Keywords in C can be defined as the pre-defined or the reserved words having its
- Since keywords are the pre-defined words used by the compiler, so they cannot be
- If the keywords are used as the variable names, it means that we are assigning a c

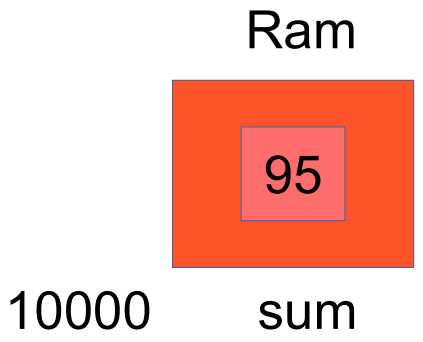
auto	for	static	volatile
break	if	sizeof	while
case	goto	signed	void
char	block	short	unsigned
const	extern	return	union
continue	enum	register	typedef
default	else	long	switch
do	double	int	struct

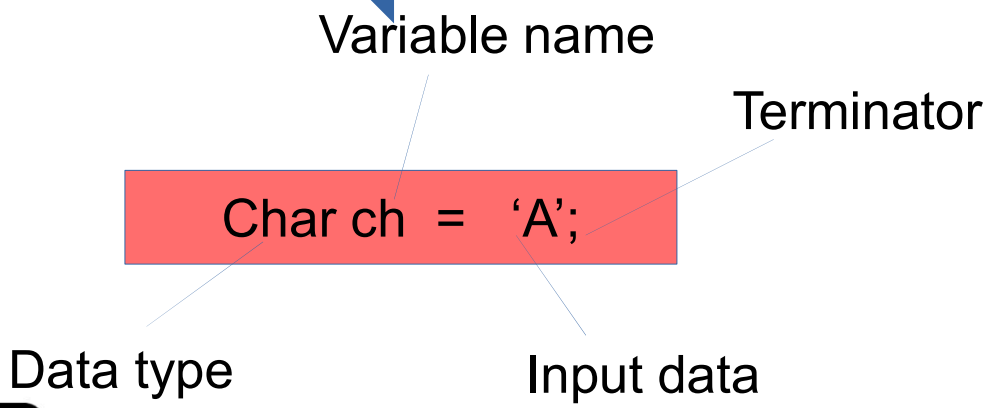
Variables

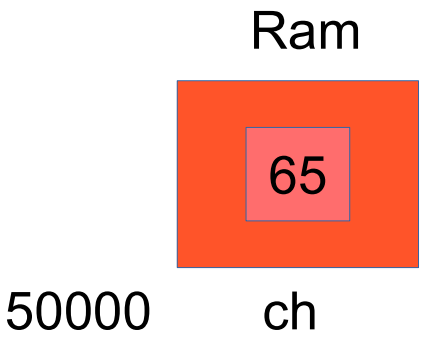
A variable is a name of the memory location. It is used to store data. Its value can be c

Type	Meaning	Modifier
Integer	Signed whole numbers	int
Float	Floating point numbers	float
Character	Character data	char
Double	Double precision floating point number	double
void	Represents the absence of type	void









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Types of variables in c
local variable
global variable
static variable
automatic variable
external variable

Local Variable

A variable that is declared inside the function or block is called a local variable. It must be declared at the start of the block.

```
void function1()
{
   int x=10;//local variable
}
```

Global Variable

- A variable that is declared outside the function or block is called a global variable
- Any function can change the value of the global variable. It is available to all the
- function
- It must be declared at the start of the program

```
int value=20;//global variable
void function1()
{
    int x=10;//local variable
}
```

Static Variable

- A variable that is declared with the static keyword is called static variable.
- It retains its value between multiple function calls.

```
void function1()
{
	int x=10;//local variable
	static int y=10;//static variable
	x=x+1;
	y=y+1;
	printf("%d,%d",x,y);
}
```

Automatic Variable

All variables in C that are declared inside the block, are automatic variables by defau

```
void main()
{
     int x=10;//local variable (also automatic)
    auto int y=20;//automatic variable
}
```

External Variable

We can share a variable in multiple C source files by using an external variable. To d

myfile.h

```
extern int x=10;//external variable (also global)
```

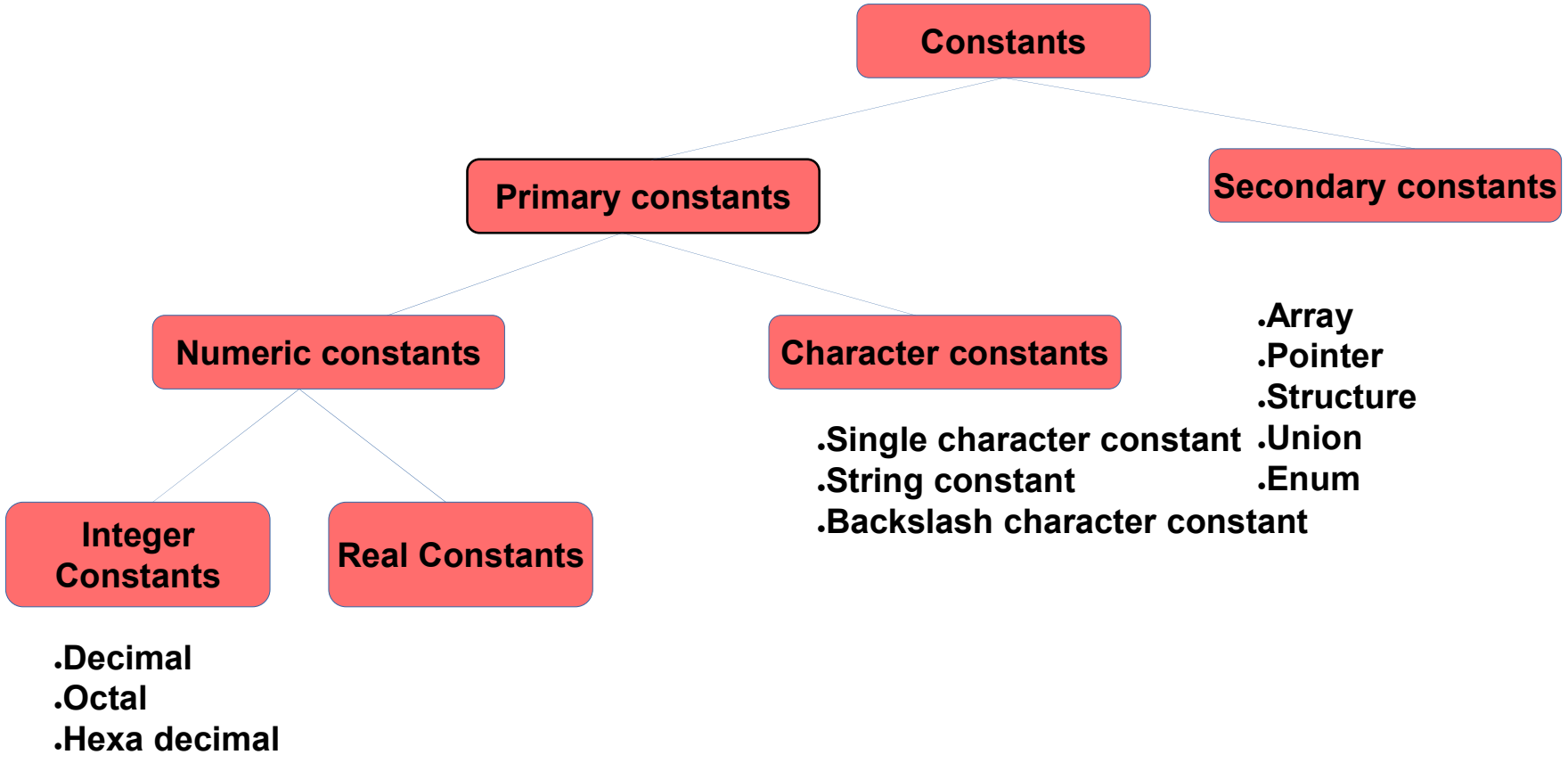
program1.c

```
#include "myfile.h"
#include <stdio.h>
void printValue()
{
    printf("Global variable: %d", global_variable);
}
```

Constant

➢A constant is a name given to the variable whose values can't be altered or changed.
➢Value is fixed ,not changeable,These fixed values are also called literals

Constant	Example
Decimal Constant	10, 20, 450 etc
Real or Floating-point Constant	10.3, 20.2, 450.6 etc
Octal Constant	021, 033, 046 etc
Hexadecimal Constant	0x2a, 0x7b, 0xaa etc
Character Constant	'a', 'b', 'x' etc.
String Constant	"c", "c program", "compiler" etc.



ways to define constant in C

Using key word const

The const keyword specifies that a variable's value is constant and tells the compiler

```
const int a=10;
const float m=20.025;
const char c =’a’;
const char c[ ]=”hai”;
```

const type variable = value;

Using Macros

Macros are handled by the pre-processor - the pre-processor does text replacement

```
# define a 10
# define  m 20.34
# define  c  'a'
# define  ch "hai"
```

#define identifier value

Integer constant

An integer constant is a decimal (base 10), octal (base 8), or hexadecimal (base 16)

Decimal	1,2,3	(0-9)	base 10
Octal	05,02,01	(0-7)	base 8
Hexadecimal	0xA,0XB	(0-15) (0-9) (A-F)	base 16
Binary	0b01,0b101	(0-1)	base 2

Number system

Decimal (Base 10)	Binary (Base 2)	Octal (Base 8)	Hexa Decimal (Base 16)
0	0	0	0
1	1	1	1
2	10	2	2
3	11	3	3
4	100	4	4
5	101	5	5
6	110	6	6
7	111	7	7
8	1000	10	8
9	1001	11	9
10	1010	12	A
11	1011	13	B
12	1100	14	C
13	1101	15	D
14	1110	16	E
15	1111	17	F
16	10000	20	10

Decimal	const int a=10; #define a 10
Octal	const int a=0510; #define a 0510
Hexadecimal	const int a=0xA1F; #define a 0xA1F

Real/Floating point constant

A "floating-point constant" is a decimal number that represents a signed real number

Float	const float a=10.3; #define a 10.3

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Character constant

A "character constant" is formed by enclosing a single character from the representa

const char c =’a’;

#define c ‘a’

String constant

A String Literal, also known as a string constant or constant string, is a string of chara

```
const char c[ ] =”Hello”;
```

```
#define   c  “Hello”
```

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Operators

Based on operation
Arithmetic operator
Relational operator
Logical operator
Assignment operator
Modifying operator
Bit wise operator
Postfix operator
Conditional operator
Comma operator
Special operator

Based on operands
Unary operator
Binary operator
Ternary operator

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