SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 20CS101-PROGRAMMING FOR PROBLEM SOLVING

I YEAR /I SEMESTER

Unit 2- C-Programming Basics

Topic 3: Constants, Variables, keywords, Identifier, Delimiters

UNITII	C PROGRAMMING BASICS	9

Introduction to ‘C’ Programming –Fundamental rules – Structure of a ‘C’ program – Compilation and Linking processes –Constants, Variables, keywords, Identifier, Delimiters – Declaring and Initializing variables – Data Types – Operators and Expressions –Managing Input and Output operations – Decision Making and Branching –Looping statements – Illustrative programs.

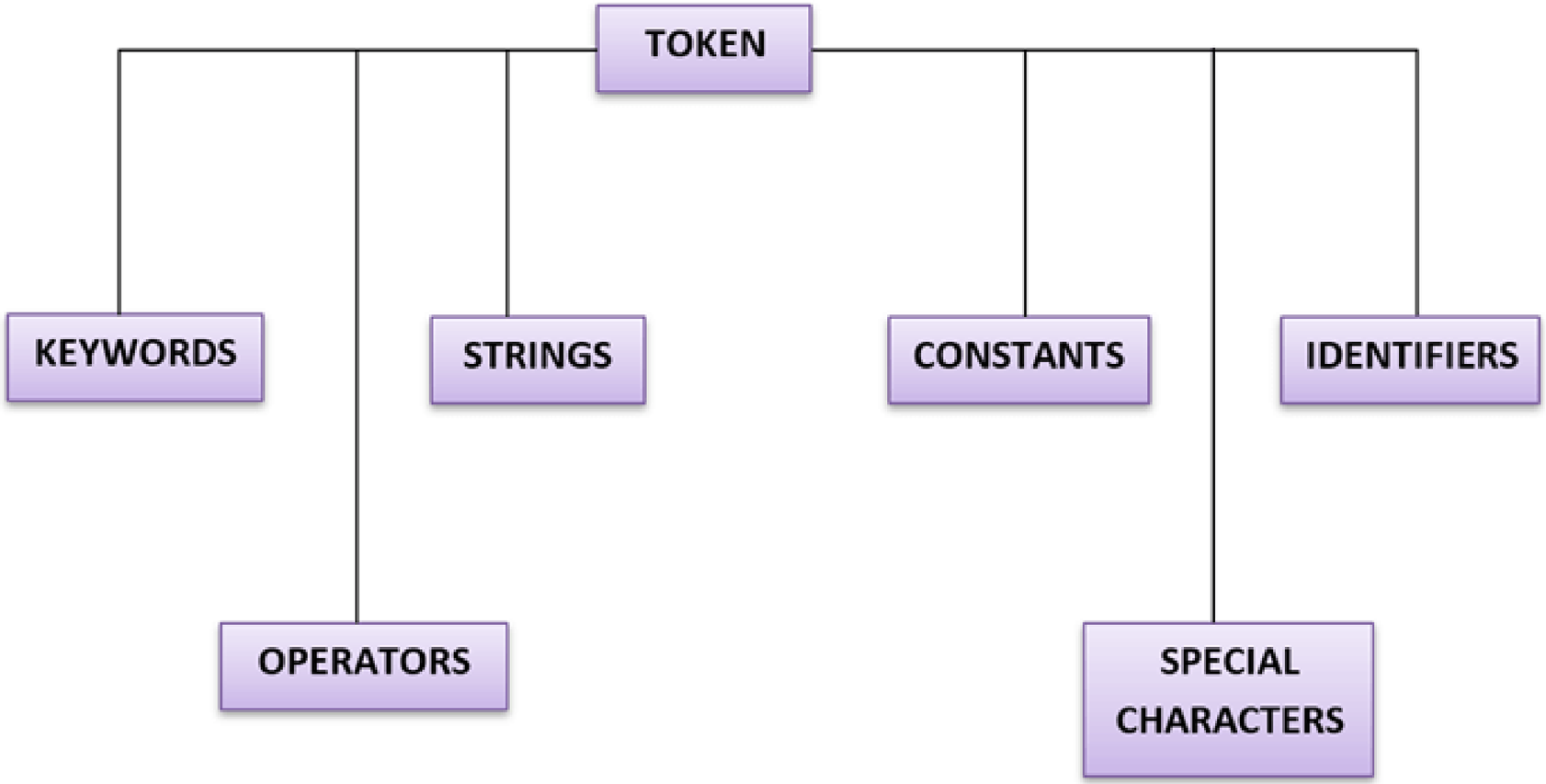
C TOKENS:

- C tokens are the basic buildings blocks in C language which are constructed together to write a C program.
- Each and every smallest individual units in a C program are known as C tokens.

C tokens are of six types. They are,

Keywords	(eg: int, while),
Identifiers	(eg: main, total),
Constants	(eg: 10, 20),
Strings	(eg: “total”, “hello”),
Special symbols	(eg: (), {}),
Operators	(eg: +, /,-,*)

C TOKENS:


TOKEN
KEYWORDS
STRINGS
CONSTANTS
IDENTIFIERS
OPERATORS
SPECIAL CHARACTERS

KEYWORDS IN C LANGUAGE

- Keywords are pre-defined words in a C compiler.
- Each keyword is meant to perform a specific function in a C program.
- Since keywords are referred names for compiler, they can’t be used as variable name.
- C language supports 32 keywords.

Conti...

A keyword is a **reserved word**. You cannot use it as a variable name, constant name, etc. There are only 32 reserved words (keywords) in the C language.

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

C TOKENS:

```
int main() {
    return 0;
}
```

C TOKENS

2. Identifiers

Identifiers are names given to variables, functions, arrays, and other user-defined items.

They must follow certain rules:

- Must start with a letter or underscore (_).
- Can contain letters, digits, and underscores.
- Case-sensitive.
- Cannot be a keyword.

age and salary are **identifiers**

```
int age;
float salary;
```

C TOKENS EXAMPLE PROGRAM

```c
int main()
{
    int x, y, total;
    x = 10, y = 20;
    total = x + y;
    printf ("Total = %d \n", total);
}
```

where,

main – identifier
{,}, (,) – delimiter
int – keyword
x, y, total – identifier
main, {, }, (,), int, x, y, total – tokens

Constants in C

- A constant is a value or variable that can't be changed in the program.
- for example: 10, 20, 'a', 3.4, "c programming" etc.
- There are different types of constants in C programming.

List of Constants in C

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", "c in javatpoint" etc.

2 ways to define constant in C

There are two ways to define constant in C programming.

1. **const keyword**
2. **#define preprocessor**

1) C const keyword

The const keyword is used to define constant in C programming.

Conti...

Example: const float PI=3.14;

```
#include<stdio.h>
int main()
{
   const float PI=3.14;
   printf("The value of PI is: %f",PI);
   return 0;
}
```

Note: If you try to change the the value of PI, it will render compile time error.

OUTPUT: The value of PI is: 3.14

2) C- #define preprocessor

- The #define preprocessor is also used to define constant.
- The #define preprocessor directive is used to define constant or micro substitution.
- It can use any basic data type.

Conti...

Example:

```
#include <stdio.h>
#define PI 3.14
void main()
{
   printf("%f",PI);
}
```

Output:3.14

Let's see an example of #define to create a macro.

```
#include <stdio.h>
#define MIN(a,b) ((a)<(b)?(a):(b))
void main() {
printf("Minimum number of 10 and 20 is: %d\n", MIN(10,20));
}
```

OUTPUT: Minimum number of 10 and 20 is: 10

Example of #define to create a macro.

```c
#include <stdio.h>
#define PI 3.1415

int main()
{
    float radius, area;
    printf("Enter the radius: ");
    scanf("%f", &radius);

    // Notice, the use of PI
    area = PI*radius*radius;

    printf("Area=%.2f",area);
    return 0;
}
```

Delimiters

Colon	:	Used to define a label [for goto].
Semi-colon	;	Used as the end of the statement.
Parentheses	()	Used in expressions and functions.
Square Braces	[]	Used to declare an array.
Curly Braces	{}	Used to provide the scope for set of statements.
Hash	#	It is a pre-processor directive.
Comma	,	Variable separator.

Assessment 1

1. List out the tokens in C language.

Ans : _____

2. Write about constants, keywords and delimiters in C ?

Ans : _____

References

TEXT BOOKS

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Thank You