



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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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



Brain Storming



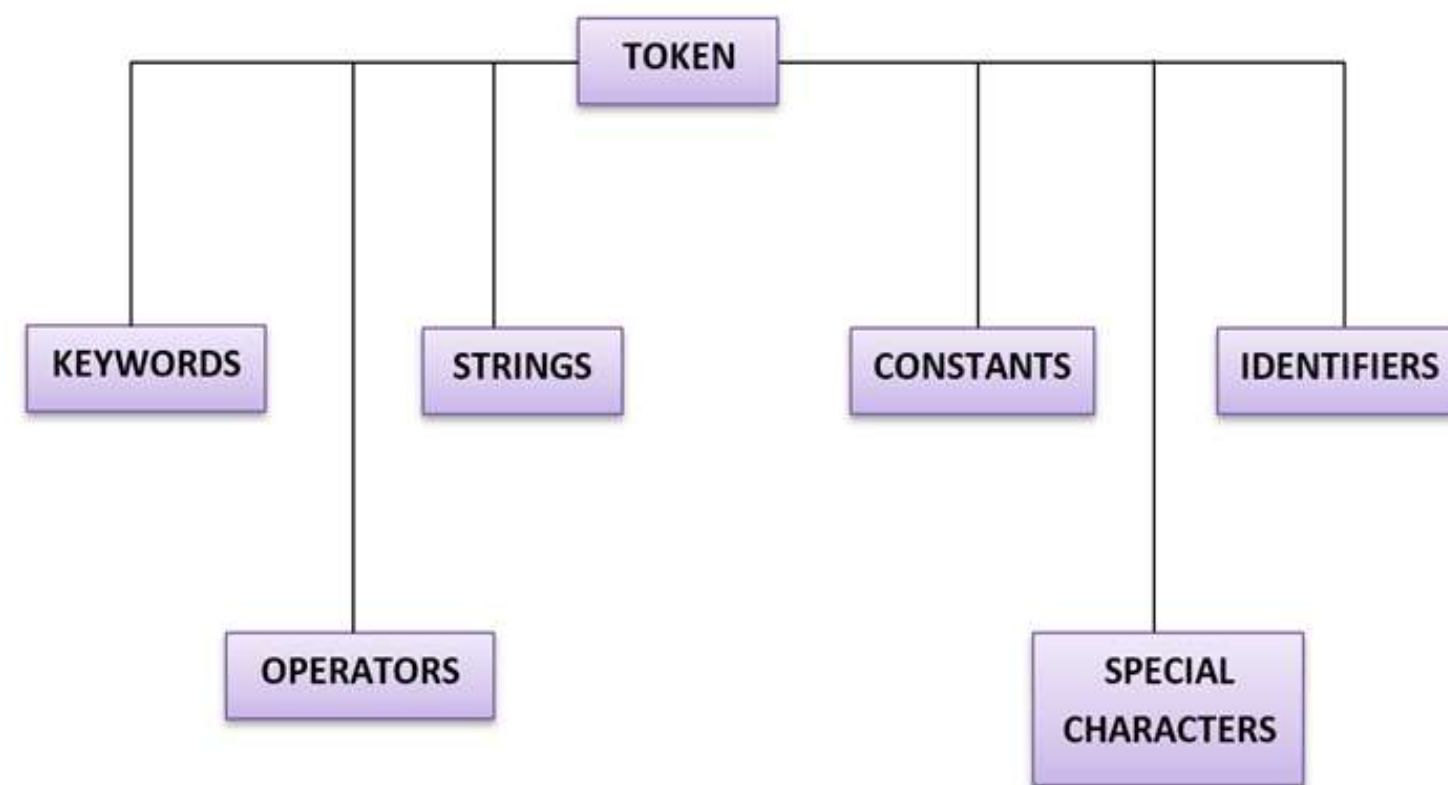
1. What is variable?
2. What is constant?



C TOKENS:



- C tokens are the basic building 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 EXAMPLE PROGRAM



```
Void main()
{
int num1,num2,sum;
num1=05;
num2=7;
sum= num1+num2;
printf("sum=%d\n", sum);
}
```

where,

main – identifier

{}, (,) – delimiter

int – keyword

num1,num2,sum -identifier

main, { }, (), int, num1, num2, sum – tokens



IDENTIFIERS IN C LANGUAGE



- Each program elements in a C program are given a name called identifiers.
- Names given to identify Variables, functions and arrays are examples for identifiers.
- Example: “num1” is a name given to integer variable in previous program



RULES FOR CONSTRUCTING IDENTIFIER NAME IN C



- First character should be an alphabet or underscore.
- Succeeding characters might be digits or letter.
- Punctuation and special characters aren't allowed except underscore.
- Identifiers should not be keywords.



KEYWORDS IN C LANGUAGE



- 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.
- Keywords are pre-defined words in a C compiler.
- Each keyword is meant to perform a specific function in a C program.

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



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.

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:

```
#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.

```
#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;
}
```



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



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