ASSIGNMENT NO 5

PARTH JOHRI

2K20/B17/33

THEORY

while loop

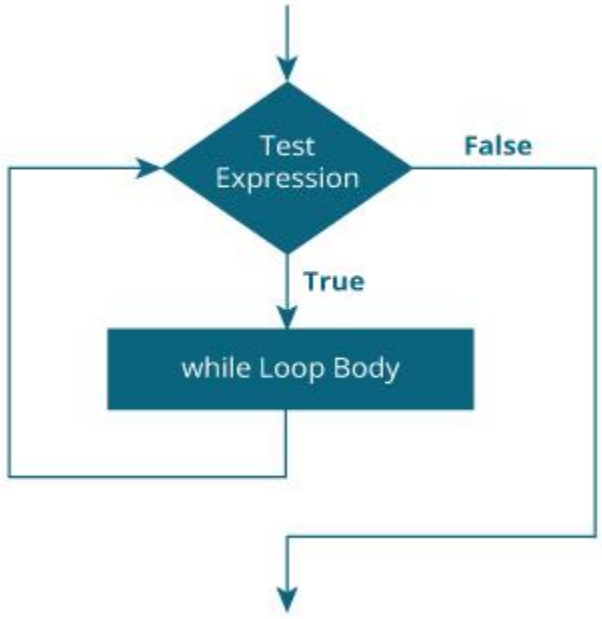
The syntax of the while loop is:

```
while (testExpression)
{
   // statements inside the body of the loop
}
```

How while loop works?

- The while loop evaluates the test expression inside the parenthesis ().
- If the test expression is true, statements inside the body of while loop are executed. Then, the test expression is evaluated again.
- The process goes on until the test expression is evaluated to false.
- If the test expression is false, the loop terminates (ends).

FLOWCHART OF THE WHILE LOOP



C pow()

The ***pow()*** function computes the power of a number.

The ***pow()*** function takes two arguments ***(base value and power value)*** and**, returns the power raised to the base number.**

For example,

x^y = pow(x, y) **[In programming]**

The **pow()** function is defined in **math.h** header file.

The **math.h** header defines various mathematical functions and one macro.

All the **functions** available in this library take **double** as an argument and return double as the result.

Q1

```
#include <stdio.h>


int main()
{int num ,d,sum=0 ;
printf("ENTER A 5 DIGIT NUMBER \n");
scanf("%d",&num);//Taking an input from the user
while(num!=0)
{d=num%10;// digit extraction
sum=sum+d;//storing the sum of the digits
num=num/10;
}
printf("\nTHE SUM OF THE 5 DIGIT NUMBER = %d",sum);
  return 0;
}
```

```c
/******************************************************************************

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num=num/10;
}
printf("\nTHE SUM OF THE 5 DIGIT NUMBER = %d",sum);
  return 0;
}
```

```
ENTER A 5 DIGIT NUMBER
84254

THE SUM OF THE 5 DIGIT NUMBER = 23

...Program finished with exit code 0
Press ENTER to exit console.
```

Q2

```
#include <stdio.h>
#include <math.h>
int main()
{int num ,numdup ,d,count=0,count1=0 ;
double rev=0.0;
printf("ENTER A N DIGIT NUMBER \n");
scanf("%d",&num);
numdup=num;//duplicate of the number num
while(numdup!=0)
{++count;
numdup=numdup/10;
}
printf("\nORIGINAL %d DIGIT NUMBER = %d\n",count,num);
count1=count;
while(num!=0)
{d=num%10;//digit extraction
rev+=d*pow(10,(--count));
num=num/10;
}
printf("\nREVERSE OF THE %d DIGIT NUMBER =
%.0lf",count1,rev);
  return 0; }
```

```
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numdup=num;//duplicate of the number num
while(numdup!=0)
{++count;
numdup=numdup/10;
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count1=count;
while(num!=0)
{d=num%10;//digit extraction
rev+=d*pow(10,(--count));
num=num/10;
}
printf("\nREVERSE OF THE %d DIGIT NUMBER = %.0lf",count1,rev);
  return 0;
}
```

```
ENTER A N DIGIT NUMBER
12345

ORIGINAL 5 DIGIT NUMBER = 12345

REVERSE OF THE 5 DIGIT NUMBER = 54321

...Program finished with exit code 0
Press ENTER to exit console.
```