ASSIGNMENT NO 6

SUBMITTED BY

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2K20/B17/33

In programming, *a loop is used to repeat a block of code until the specified condition is met.*

C programming has three types of loops:

1. **for loop**
2. **while loop**
3. **do...while loop**

for Loop

The syntax of the for loop is:

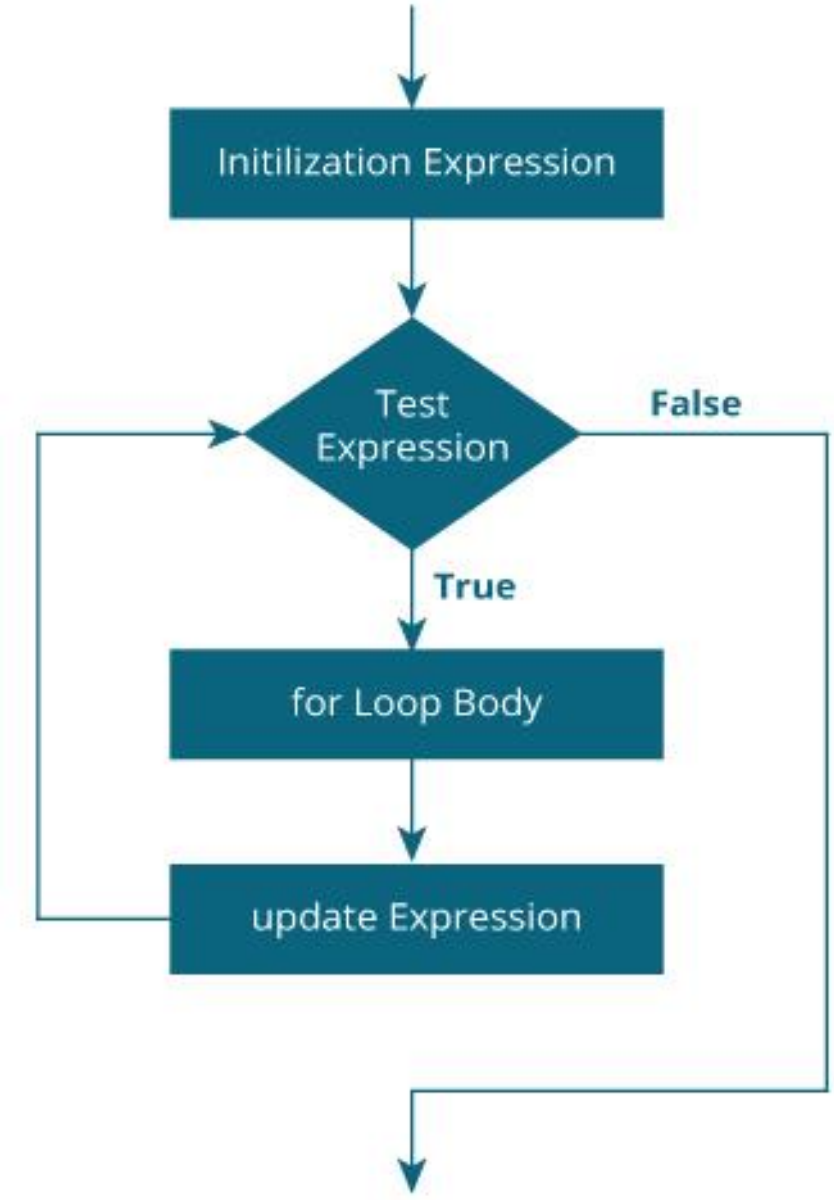
```
for (initializationStatement; testExpression; updateStatement)
{
   // statements inside the body of loop
}
```

How for loop works?

- The initialization statement is executed only once.
- Then, the test expression is evaluated. If the test expression is evaluated to false, the for loop is terminated.
- However, if the test expression is evaluated to true, statements inside the body of for loop are executed, and the update expression is updated.
- Again the test expression is evaluated.

This process goes on until the test expression is false. When the test expression is false, the loop terminates.

for loop Flowchart



Q1

```
#include <stdio.h>


int main()
{ int i,n,pr=1;
printf("Enter a number to get it's multipication table \n");
scanf("%d",&n);//taking a input from the user
printf("\nMULTIPLICATION TABLE OF %d upto 10 is given below \n",n);
for(i=1;i<=10;i++)
{pr=n*i;//calculating the multiples and storing it in variable pr
printf("%d * %d = %d\n",n,i,pr);
 }
 return 0;
}
```

```
/******************************************************************************

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for(i=1;i<=10;i++)
{pr=n*i;//calculating the multiples and storing it in variable pr
printf("%d * %d = %d\n",n,i,pr);
 }
 return 0;
}
```

```
Enter a number to get it's multipication table
3

MULTIPLICATION TABLE OF 3 upto 10 is given below
3 * 1 = 3
3 * 2 = 6
3 * 3 = 9
3 * 4 = 12
3 * 5 = 15
3 * 6 = 18
3 * 7 = 21
3 * 8 = 24
3 * 9 = 27
3 * 10 = 30


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

Q2

```
#include <stdio.h>

int main()
{ int i,base,exponent,pr=1;
printf("Enter a base number to find power of this number using for loop\n");
scanf("%d",&base);//taking a input from the user
printf("Enter the exponent value\n");
scanf("%d",&exponent);//taking a input from the user
for(i=1;i<=exponent;i++)
{pr*=base;//calculating the power of a number and storing it in pr
}
printf("\n%d ^ %d = %d\n",base,exponent,pr);

 return 0;
}
```

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

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for(i=1;i<=exponent;i++)
{pr*=base;//calculating the power of a number and storing it in pr
}
printf("\n%d ^ %d = %d\n",base,exponent,pr);

 return 0;
}
```

```
Enter a base number to find power of this number using for loop
2
Enter the exponent value
5

2 ^ 5 = 32


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