C-Programms
LOOPS
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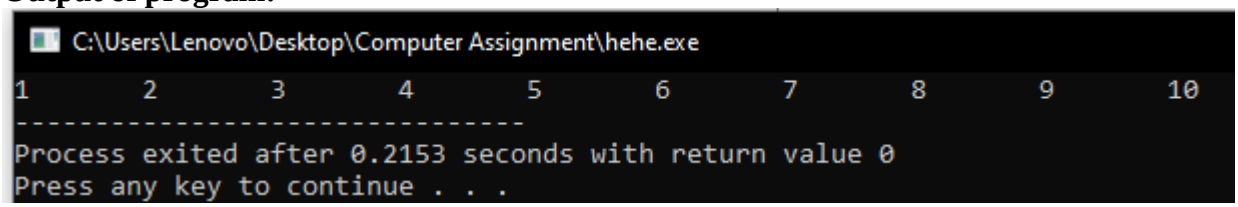
While loop

1. WAP to print first 10 natural numbers using while loop.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1;
    while(i<=10)
    {
            printf("%d\t",i);
            i++;
    }
}
```

Output of program:



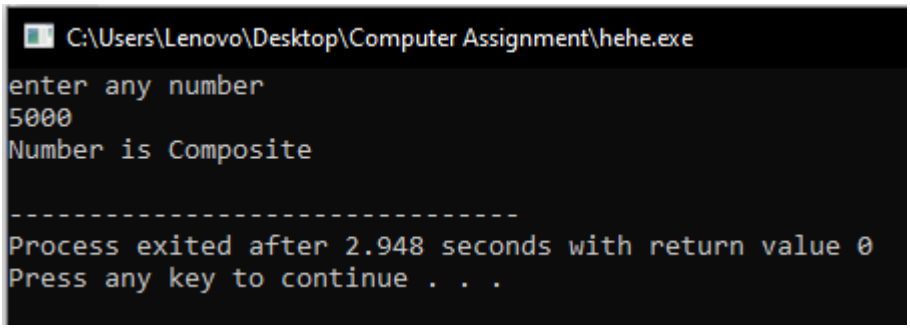
2. WAP to check whether the given number is prime number or composite using while loop.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1,n,c=0;
    printf("enter any number\n");
    scanf("%d",&n);
    while(i<=n)
    {
            if(n%i==0)
            c=c+1;
            i++;
    }
    if(c==2)
    printf("Number is Prime\n");
    else
```

```
    printf("Number is Composite\n");
    return 0;
}
```

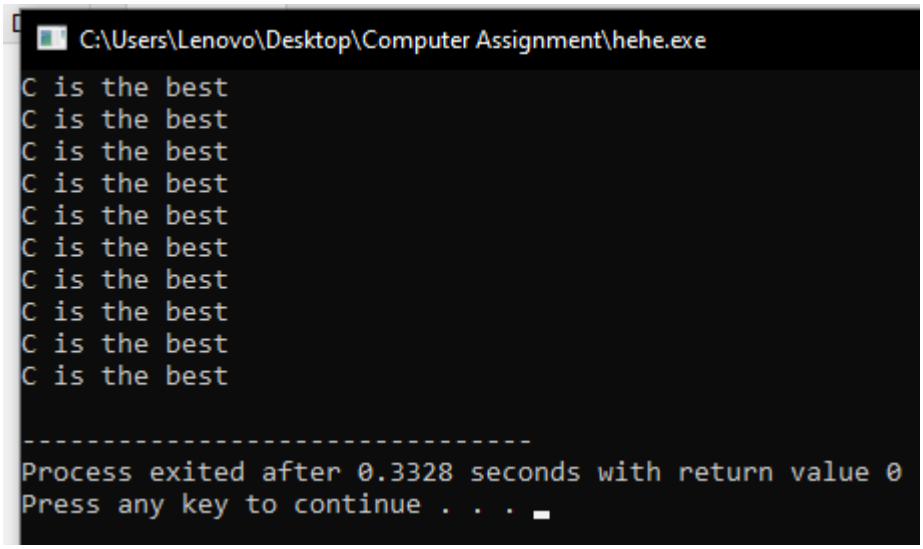
Output of program:



3. Write a program to display “C is the best” 10 times using while loop.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1;
    while(i<=10)
    {
        printf("C is the best\n");
        i++;
    }
}
```



Output of the program:

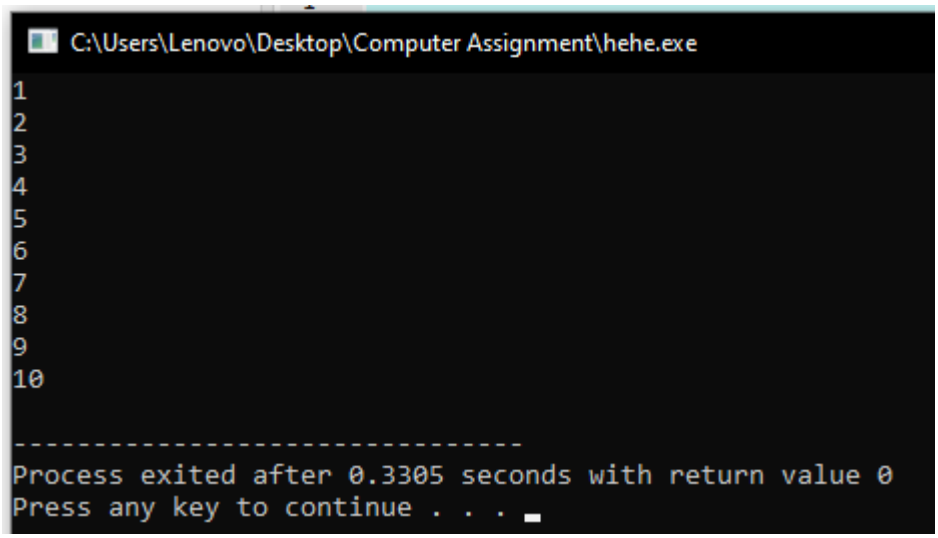
4. Write a program to display numbers 1 to 10.

Solution:

```
#include<stdio.h>
int main()
```

```
{
    int i=1;
    while(i<=10)
    {
            printf("%d\n",i);
            i++;
    }
}
```

Output of program:

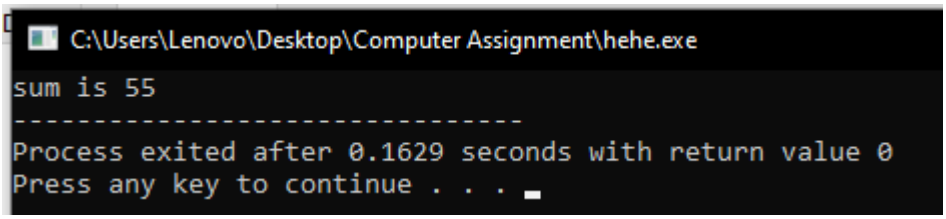


5. Write a program to calculate and display sum of the numbers from 1 to 10.

Solution:

```
#include <stdio.h>
int main()
{
    int i=1,sum=0;
    while(i<=10){
            sum=sum+i;
            i++;
    }
    printf("sum is %d",sum);
}
```

Output of program:



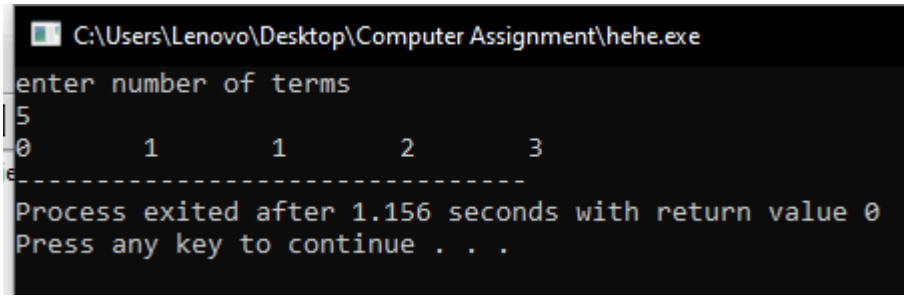
6. WAP to read a positive integer and display the sequence 1 2 3 4…..n-1 n n-1 4 3 2 1 .

7. WAP to find the Fibonacci sequence up to a certain number.

Solution:

```
#include<stdio.h>
int main()
{
    int a=0,b=1,c,i=1,n;
    printf("enter number of terms\n");
    scanf("%d",&n);
    while(i<=n)
    {
            printf("%d\t",a);
            c=a+b;
            a=b;
            b=c;
            i++;
    }
}
```

Output of program:



Do while loop

1. Write a program to display the series: 1 6 11 16 ……101.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1,n;
    do
    {
            printf("%d\t",n);
            n=n+5;
            i++;
    }while(i<=21);
```

}

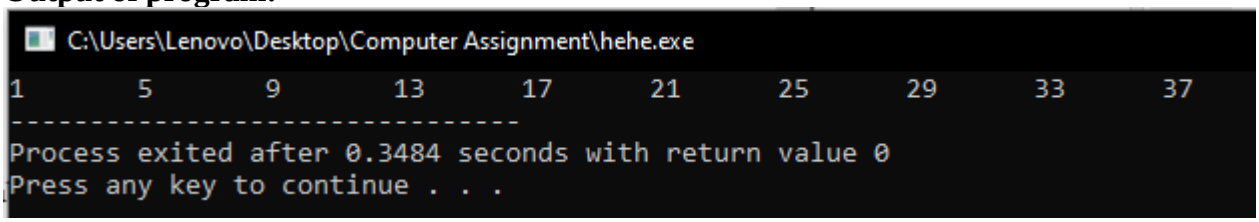
Output of the program:

2. Write a program to display the series: 5 9 13 ……..up to 10th term.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1,n=1;
    do
    {
            printf("%d\t",n);
            n=n+4;
            i++;
    }while(i<=10);
}
```

Output of program:

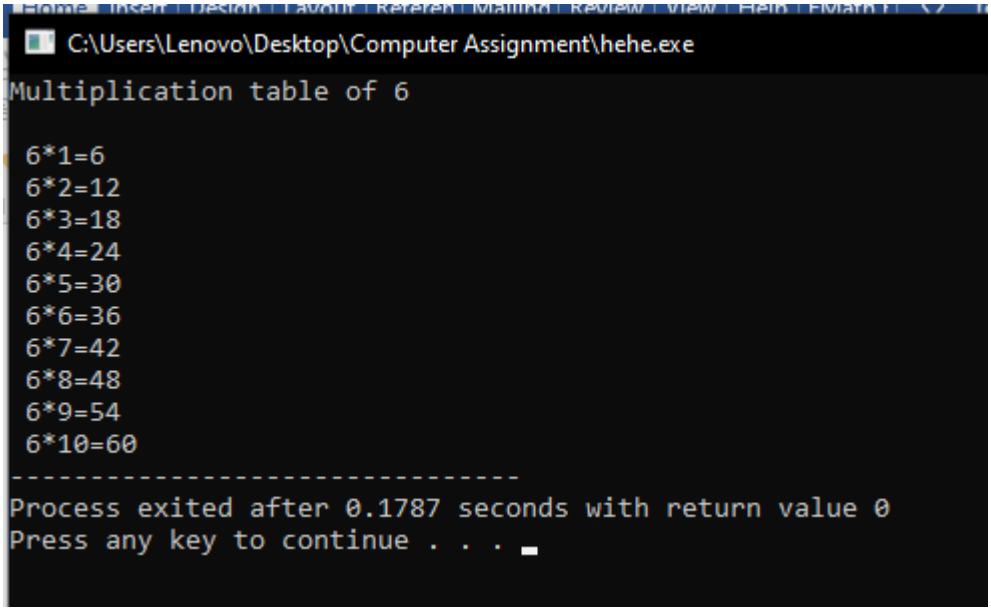


3. Write a program to display multiplication table of 6.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1;
    printf("Multiplication table of 6\n");
    do
    {
            printf("\n 6*%d=%d",i,6*i);
            i++;
    }while(i<=10);
}
```

Output of program:



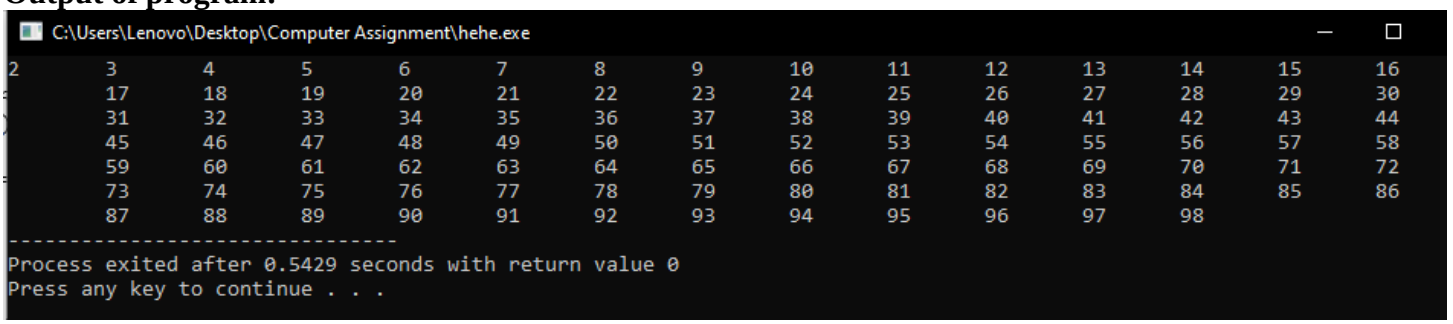
4. WAP to read a number that is between 1 and 99 and display it.

Solution:

```
#include<stdio.h>
int main()
{
    int n=2;
    do
    {
            printf("%d\t",n);
            n++;
    }while(n<=98);

}
```

Output of program:



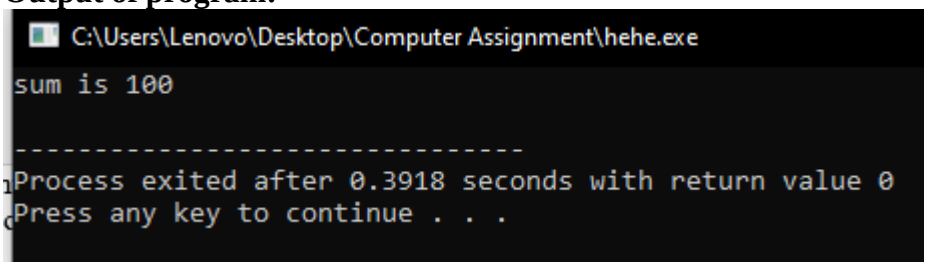
5. WAP to find the sum of odd number using n with use of do while loop where the value of n should be entered by user.

Solution:

```
#include<stdio.h>
int main()
{
    int i=1,n=1,sum=0;
    do
    {
            sum=sum+n;
```

```
            n=n+2;
            i++;
    }while(i<=10);
    printf("sum is %d\n",sum);
}
```

Output of program:

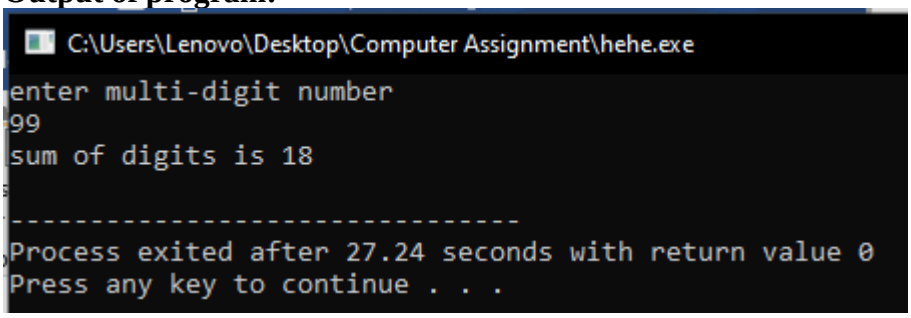


6. WAP to read a positive integer and display the sum of the digits in it.

Solution:

```
#include<stdio.h>
int main()
{
    int n,sum=0,r;
    printf("enter multi-digit number\n");
    scanf("%d",&n);
    do
    {
            r=n%10;
            sum =sum+r;
            n=n/10;
    }while(n>0);
    printf("sum of digits is %d\n",sum);
}
```

Output of program:



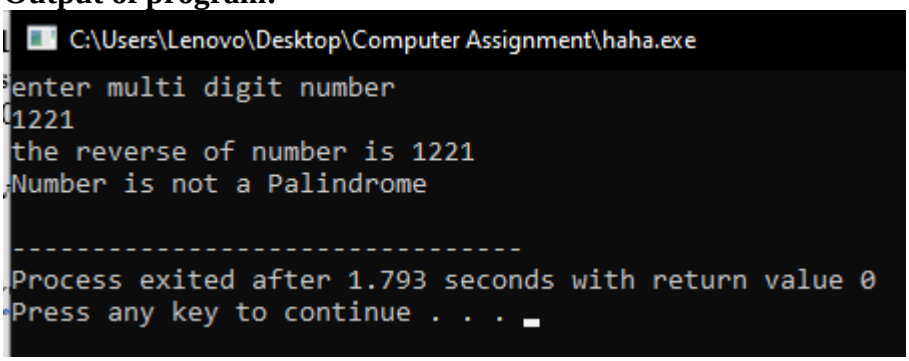
7. WAP to find the reverse of the number entered by user. Then check whether the reversed number is equal to the original number. If the reverse and original number are equal then display a message number is palindrome otherwise not palindrome.

Solution:

```
#include<stdio.h>
int main()
{
    int n,sum=0,r,a;
    printf("enter multi digit number\n");
    scanf("%d",&n);
    do
```

```
    {
            r=n%10;
            sum=sum*10+r;
            n=n/10;
    }while(n>0);
    printf("the reverse of number is %d\n",sum);
    if(sum==a)
    {
            printf("Number is Palindrome\n");
    }
    else
    {
    printf("Number is not a Palindrome\n");
    }
}
```

Output of program:



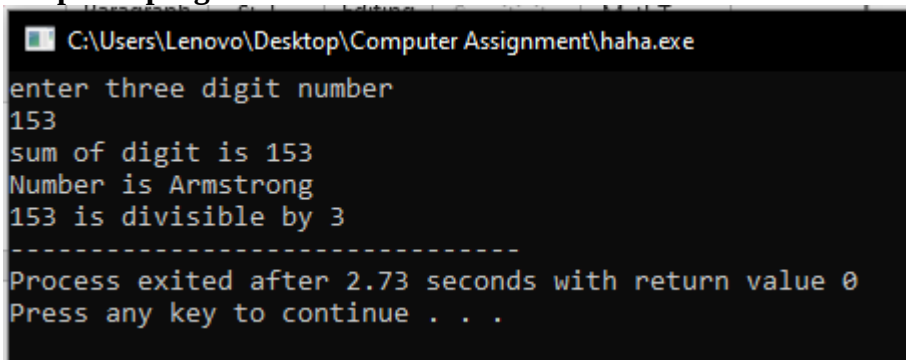
8. Modify the above-mentioned program to check whether the given number is Armstrong or not. Also display the message whether the number is divisible by 3 or not.

Solution:

```
#include<stdio.h>
int main()
{
    int n,sum=0,r,a;
    printf("enter three digit number\n");
    scanf("%d",&n);
    a=n;
    do
    {
            r=n%10;
            sum =sum+(r*r*r);
            n=n/10;
    }while(n>0);
    printf("sum of digit is %d\n",sum);
    if(sum==a)
    {
            printf("Number is Armstrong\n");
    }
    else
    {
            printf("Number is Not Armstrong\n");
    }
```

```
    if(sum%3==0)
    {
            printf("%d is divisible by 3",sum);
    }
    else
    {
            printf("%d is not divisible by 3",sum);
    }
    return 0;
}
```

Output of program:



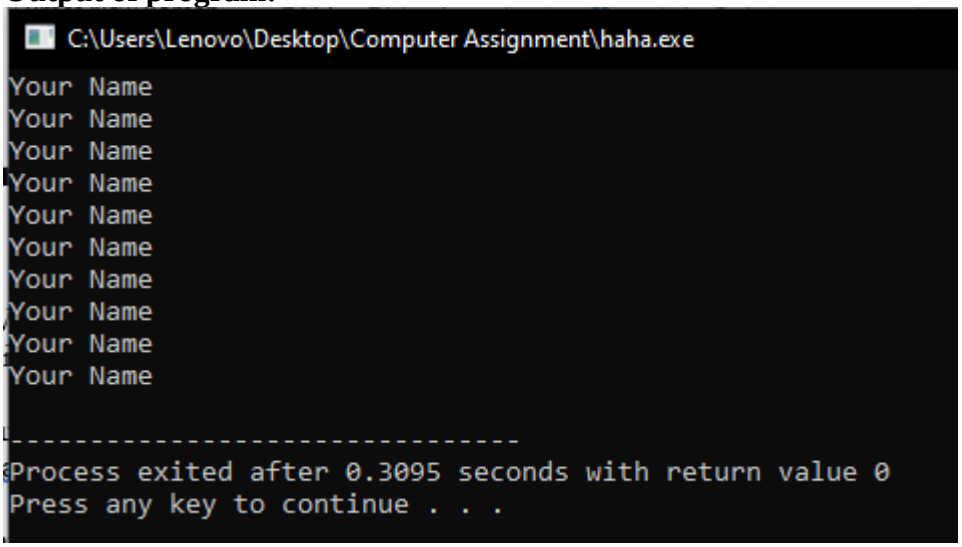
For loop

1. WAP to print your name 10 times using for loop.

Solution:

```
#include<stdio.h>
int main()
{
    int i;
    for(i=1;i<=10;i++)
    {
            printf("Your Name\n");
    }
}
```

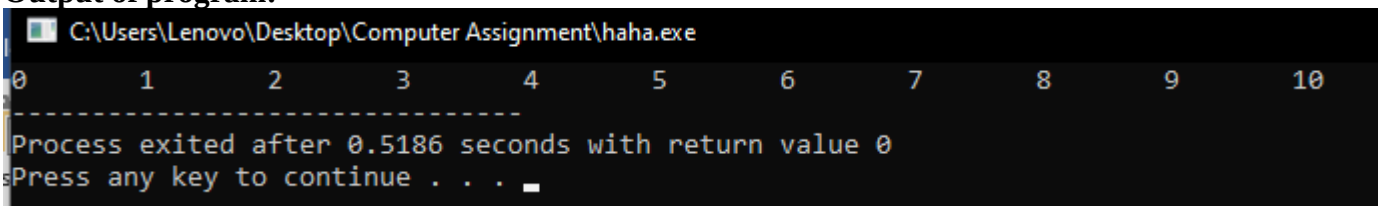
Output of program:



2. WAP to display the number from 0 to 10 using for loop.
Solution:

```
#include<stdio.h>
int main()
{
    int i;
    for(i=0;i<=10;i++)
    {
            printf("%d\t",i);
    }
}
```

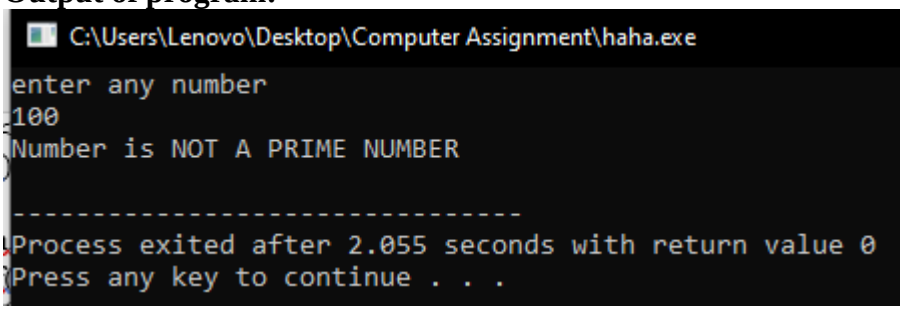
Output of program:



3. WAP to input a number and check whether the number is prime or not.
Solution:

```
#include<stdio.h>
int main()
{
    int i,n,c=0;
    printf("enter any number\n");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
            if(n%i==0)
            c=c+1;
    }
    if(c==2)
    printf("Number is PRIME NUMBER\n");
    else
    printf("Number is NOT A PRIME NUMBER\n");
    return 0;
}
```

Output of program:

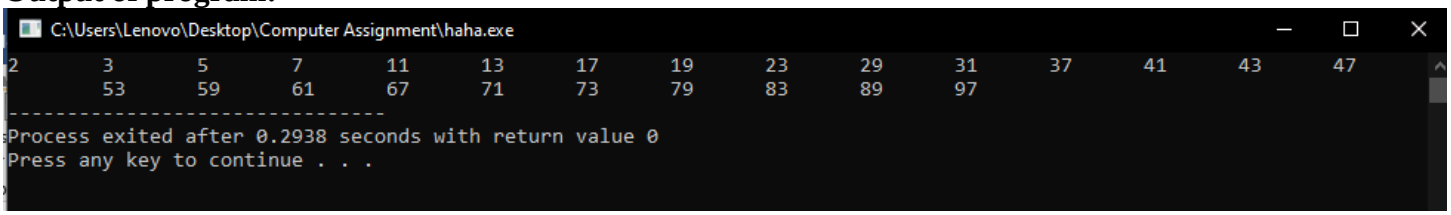


4. WAP to display all the prime number from 1 to 100.

Solution:

```
#include<stdio.h>
int checkPrime(int n);
int main()
{
    int m,i,f;
    for(m=2;m<=100;m++)
    {
            f=checkPrime(m);
            if(f==1)
            {
                    printf("%d\t",m);
            }
    }
}
int checkPrime(int n)
{
    int i;
    for(i=2;i<n;i++)
    {
            if(n%i==0)
    {
    return 0;
    break;
    }
    }
    return 1;
}
```

Output of program:

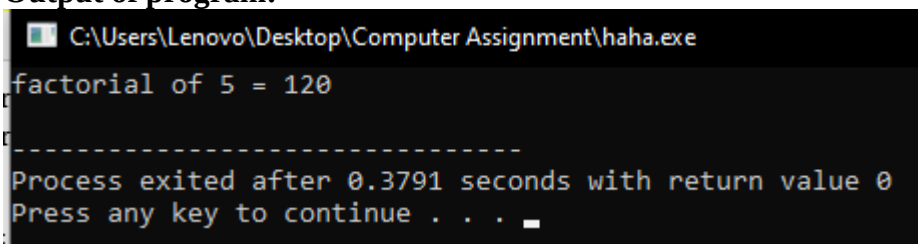


5. Write a program to calculate and display the value of y raised to power x($z=y^x$).
6. Write a program to calculate and display factorial of 5.

Solution:

```
#include<stdio.h>
int main()
{
    int c,n=5,f=1;
    for(c=1;c<=n;c++)
    {
            f=f*c;
    }
    printf("factorial of %d = %d\n",n,f);
    return 0;
}
```

Output of program:

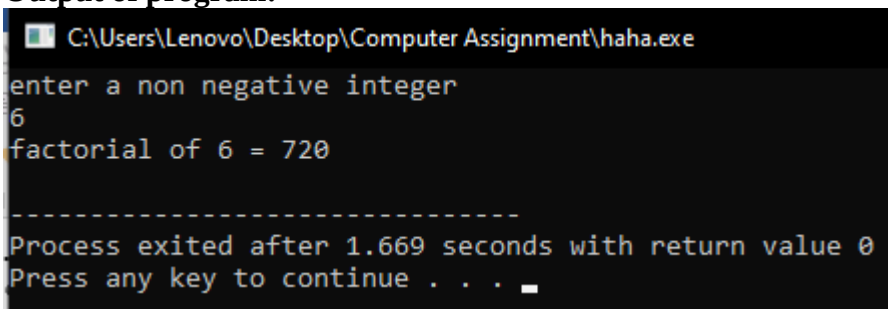


7. Write a program to display 1 to 10 and respective factorials.
Solution:

8. WAP to read a non-negative integer and display its factorial.
Solution:

```
#include<stdio.h>
int main()
{
    int c,n,f=1;
    printf("enter a non negative integer\n");
    scanf("%d",&n);
    for(c=1;c<=n;c++)
    {
            f=f*c;
    }
    printf("factorial of %d = %d\n",n,f);
    return 0;
}
```

Output of program:



9. WAP to read in an integer value for n then sum the integer from n to 2n is n is non negative or from 2n to n is negative. Display the sum.

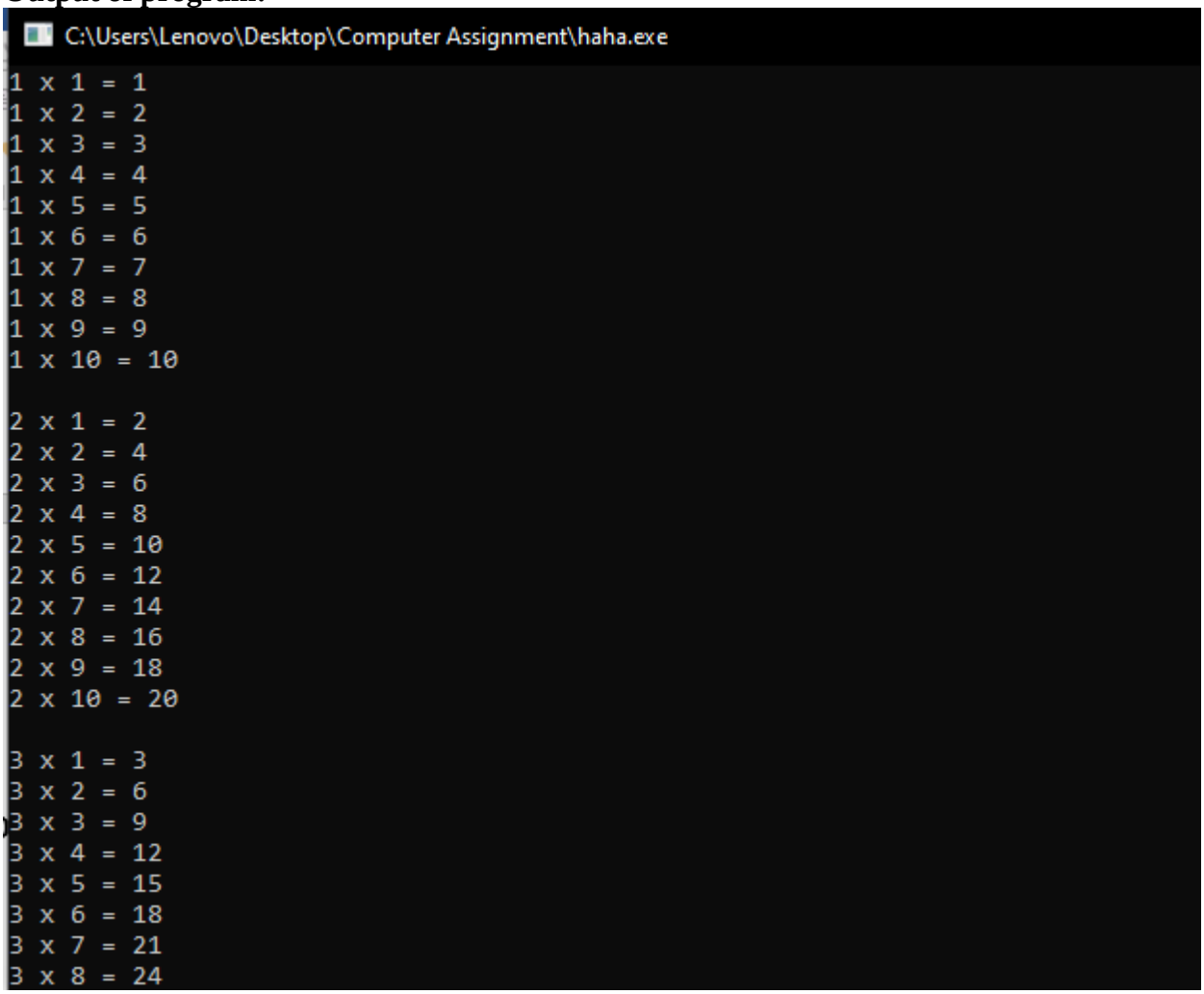
Nested for loop

1. WAP to create the multiplication table of all the numbers from 1 to 5.
Solution:

```
#include<stdio.h>
int main()
{
    int i, j, product;
    for(i=1;i<=5;i++)
    {
            for(j=1;j<=10;j++)
            {
                    product = i*j;
```

```
                printf("%d x %d = %d\n", i, j, product);
            }
            printf("\n");
    }
    return(0);
}
```

Output of program:



```
3 x 9 = 27
3 x 10 = 30

4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32
4 x 9 = 36
4 x 10 = 40

5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50


--------------------------------
Process exited after 0.3682 seconds with return value 0
Press any key to continue . . .
```

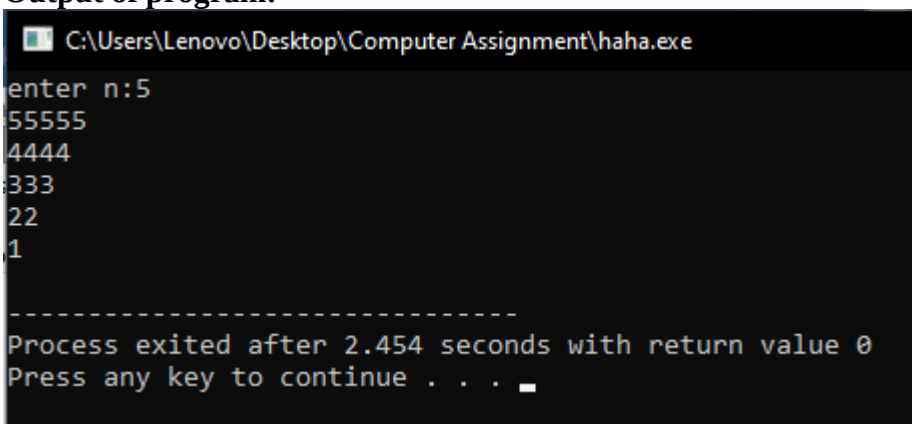
2. WAP to display the following output.

   55555
   4444
   333
   22
   1

Solution:

```
#include<stdio.h>
int main()
{
    int i,j,n;
    printf("enter n:");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d",i);
        }
        printf("\n");
    }
    return 0;
}
```

Output of program:

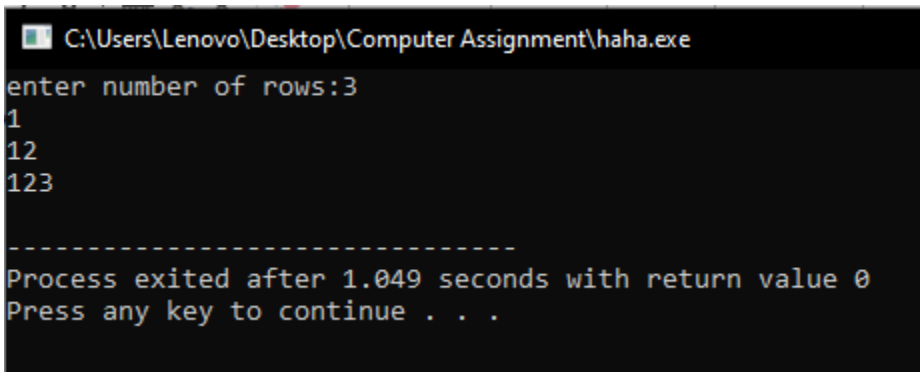


3. Write a program to display the following:
   1
   12
   123

Solution:

```
#include<stdio.h>
 int main()
{
        int i,j,rows;
        printf("enter number of rows:");
        scanf("%d",&rows);
        for(i=1;i<=rows;i++)
        {
                for(j=1;j<=i;j++)
                {
                printf("%d",j);
                }
                printf("\n");
                }
                return 0;
}
```

Output of the program:



4. Write a program to display the multiplication table of N^{th} terms.

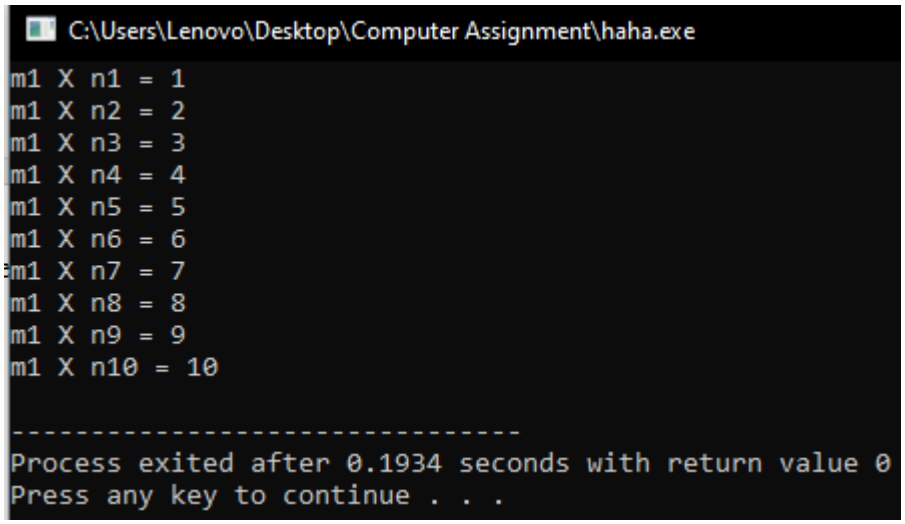
1	2	3.....N
2	4	6.....2N
3	6	9.....3N
:	:	: :
N	2N	3N.....NN

5. WAP to display the multiplication table of m by n

Solution:

```
#include<stdio.h>
int main()
{
	int n,m,i;
	for(i=1;i<=10;i++)
	{
		printf("m%d X n%d = %d\n",m,i,m*i);
	}
	return 0;
}
```

Output of program:



6. WAP to sample an output to print chessboard pattern [HINT print W for white cell and B for black cell]

W B W B W B W B
B W B W B W B W
W B W B W B W B
B W B W B W B W
W B W B W B W B
B W B W B W B W
W B W B W B W B
B W B W B W B W

Jump statement(Break and Continue and goto)

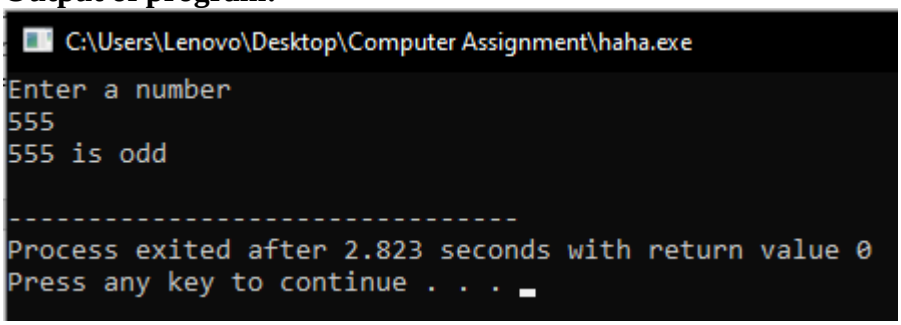
1. WAP to input a number and find out if it is even or odd using goto statement.

Solution:

```
#include <stdio.h>
int main()
{
   int num;
   printf("Enter a number\n");
   scanf("%d", &num);
   if (num % 2 == 0)
      goto even;
   else
      goto odd;
```

```
even:
    printf("%d is even\n", num);
    return 0;
odd:
    printf("%d is odd\n", num);
}
```

Output of program:



2. WAP to prompt the user to enter an integer and display a message whether the number is prime or not.

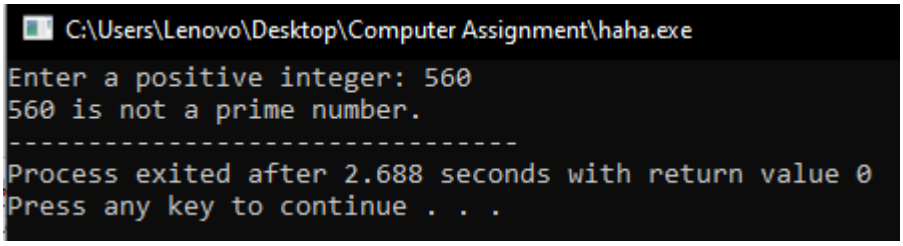
Solution:

```
#include <stdio.h>
int main()
{
  int n, i, flag = 0;
  printf("Enter a positive integer: ");
  scanf("%d", &n);
  for (i = 2; i <= n / 2; ++i)
      {
    if (n % i == 0) {
      flag = 1;
      break;
    }
  }

  if (n == 1)
  {
    printf("1 is neither prime nor composite.");
  }
  else
  {
    if (flag == 0)
      printf("%d is a prime number.", n);
    else
      printf("%d is not a prime number.", n);
  }

  return 0;
}
```

Output of program:


C:\Users\Lenovo\Desktop\Computer Assignment\haha.exe
Enter a positive integer: 560
560 is not a prime number.

Process exited after 2.688 seconds with return value 0
Press any key to continue . . .