SSN COLLEGE OF ENGINEERING (Autonomous)

Affiliated to Anna University

DEPARTMENT OF CSE

UCS 1211 PROGRAMMING IN C LABORATORY

# Assignment 1

## Simple C Programs using I/O statements, conditional and looping constructs

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1. Check whether the given integer is odd or even

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```
#include<stdio.h>
void main()
{
 int n;
 printf("Enter number :");
 scanf("%d",&n);
 if (n%2==0)
 {       printf("Even ");
```

```
  }
  else
  {        printf("Odd");
  }
}
```

# Output:

cseb131@jtl-29:~$ ./oddeven

Enter number :5

Odd

## 2. Convert the given temperature in Celsius to Fahrenheit and Kelvin scale.

```
#include<stdio.h>
void main()
{
 float c,f,k;
 printf("Enter the temperature in Celcius:");
 scanf("%f",&c);
 f=c*(9/5.0) +32;
```

```
 k=c+273;

 printf("\nTemperature in Fahrenheit :%f",f);

 printf("\nTemperature in Kelvin:%f",k);

}
```

# Output:

cseb131@jtl-29:~$ ./temp

Enter the temperature in Celcius:83  34


Temperature in Fahrenheit :93.199997

Temperature in Kelvin:307.000000

---

### 3. Modify (1) to set a flag to 1 if number is odd; 0 if even

```
#include<stdio.h>

void main()

{

 int n,f;

 printf("\nEnter number:");

 scanf("%d",&n);

 f=(n%2==0) ? 0 : 1;

 if (f==1)

 {

        printf("\nOdd");

 }

 else

 {

        printf("\nEven");
```

```
 }
}
```

## Output:

cseb131@jtl-29:~$ ./oddevenflag

Enter number:  17

Odd

## 4. Find the net salary of an employee by getting the basic pay (BP) as input.

```
#include<stdio.h>

void main()

{

 float bp,da,hra,pf,gp,d,np,cca=1000,i=2000;

 printf("\nEnter the Basic pay:");

 scanf("%f",&bp);

 da= bp*(88.0/100);

 hra= bp*(8.0/100);

 pf= bp*(1.0/10);

 gp=bp+da+hra+cca;

 d=i+pf;

 np=gp-d;

 printf("Net pay =%f",np);

 printf("Gross pay =%f",gp);

}
```

## Output:

cseb131@jtl-29:~$ ./bp

Enter the Basic pay:5000

Net pay =8300.000000Gross pay =10800.000000

# 5. Modify (4) to set HRA based on type city which is input

```c
#include<stdio.h>

void main()

{

 float bp,da,hra,pf,gp,d,np,cca,i=2000;

 char D,t;

 printf("enter bp");

 scanf("%f",&bp);

 printf("\nEnter Designation:");

 scanf(" %c",&D);

 printf("\nEnter Type of City");

 scanf(" %c",&t);

 da= bp*(88.0/100);

 pf= bp*(1.0/10);

 if(t=='R')

 {

         hra=bp*(1.0/10);

 }

 else if(t=='C')

 {

         hra=bp*(8.0/100);

 }

 else if(t=='T')

 {

         hra=bp*(5.0/100);

 }

 cca=(D=='W') ? 1000 : ((D=='E') ? 2000:5000);

 gp=bp+da+hra+cca;

 d=i+pf;
```

```
np=gp-d;

printf("Net pay :%f",np);

printf("Gross pay :%f",gp);
}
```

# Output:

```
cseb131@jtl-29:~$ ./bpcity

enter bp5000


Enter Designation:m W


Enter Type of CityR

Net pay :8400.000000Gross pay :10900.000000
```

## 6. Write a C program that will ask the user for a whole number N between 3 and 10 and print an egg timer of size N. Validate N to be non-zero positive number.

```c
#include<stdio.h>
void main()
{
 int n,i,j;
 printf("\nEnter number :");
 scanf("%d",&n);
 for (i=n;i>0;i--)
 {
        for(j=0;j=4-i;j++)
                printf(" ");
        for(k=1;k=i;k++)
                printf("*- ");
        printf("\n");
 }
 for (i=1;i<n;i++)
 {
        for(j=0;j=4-i;j++)
                printf(" ");
        for(k=1;k=i;k++)
                printf("*-");
        printf("\n");
 }
}
```

# Output:

cseb131@jtl-29:~$ ./eggtimer

Enter number :5

* * * * *

-* * * *

--* * *

---* *

----*

---* *

--* * *

-* * * *

* * * * *

7. Write a program that computes sum of N integers (Version 1)

a. Get input for N, multiple times until -999 is given (Version 2) (Use do- while)

b. Get input for N, multiple times until 'STOP' is given (Version 3)

c. Validate N to be a positive number less than 100. (Version 4)

d. Print error message for invalid input and exit (Version 5) (Use break)

e. If input is invalid, print message and ask for another input. (Version 6)

A )

```c
#include<stdio.h>
void main()
{
 int sum=0,n,num,i=1;
 printf(" Enter the total number of numbers ");
 scanf("%d",&n);
 while(i<=n)
 {
        printf(" Enter number ");
        scanf("%d",&num);
        sum+=num;
        i+=1;
```

```c
    }
    printf(" Sum=%d",sum);
}
```

## Output:

Enter the total number of numbers 3

 Enter number 5

 Enter number 8

 Enter number 3

 Sum=16

B)

```c
#include<stdio.h>
void main()
{
 int n=0,sum=0;

 do
 {
        sum+=n;
        printf("Enter number:");
        scanf("%d",&n);
}while(n!=-999);
 printf(" Sum=%d",sum);
}
```

## Output:

Enter number:4

Enter number:2

Enter number:-999

 Sum=6

C)

#include<stdio.h>

void main()

 {

 int sum=0,n;

 char op;

 do

 {

        printf("Enter Number ");

        scanf("%d",&n);

        sum+=n;

        printf("Do you want to continue(Y/N):");

        scanf(" %c",&op);

 }while(op=='Y' ||op=='y');

 printf("Sum=%d",sum);

 }

# Output:

cseb131@jtl-29:~$ ./sum3

Enter Number 3

Do you want to continue(Y/N):Y

Enter Number 9

Do you want to continue(Y/N):N

Sum=12

D)

```c
#include<stdio.h>
void main()
{
 int n,sum=0;
 char op;
 do
 {
        printf("Enter number");
        scanf("%d",&n);
        sum+=n;
        printf("Do you want to continue(Y/N):");
        scanf(" %c",&op);
}while(op=='Y' ||op=='y');
 printf("Sum =%d",sum);
 }
```

# Output:

cseb131@jtl-29:~$ ./sum4

Enter number7

Do you want to continue(Y/N):Y

Enter number4

Do you want to continue(Y/N):N

Sum =11

E)

```c
#include<stdio.h>
```

```c
void main()
{
    int n,sum=0;
    char op;
    do
    {
        printf("\nEnter number");
        scanf("%d",&n);
        if(n<0||n>100)
        {
            printf("Invalid input");
        }
        else
        {
            sum+=n;
            printf("Do you want to continue(Y/N):");
            scanf(" %c",&op);
        }
    }while(op=='Y' ||op=='y');
    printf("Sum =%d",sum);
}
```

## Output:

cseb131@jtl-29:~$ ./sum5

Enter number7

Do you want to continue(Y/N):Y


Enter number9

Do you want to continue(Y/N):N

Sum =16

F)

```c
#include<stdio.h>
void main()
{
 int n,sum=0;
 char op;
 do
 {
printf("\nEnter number ");
scanf("%d",&n);
if(n<0||n>100)
{
        printf("\nInvalid input");
        continue;
}
else
{
    sum+=n;
    printf("Do you want to continue(Y/N):");
    scanf(" %c",&op);
}

}while(op=='Y' ||op=='y');
printf("Sum = %d",sum);
}
```

## Output:

```
cseb131@jtl-29:~$ ./sum6

Enter number 3

Do you want to continue(Y/N):Y


Enter number 130


Invalid input

Enter number 2

Do you want to continue(Y/N):N

Sum = 5
```

## 8. Design a calculator to perform the operations namely addition, subtraction, multiplication, division and square of a number

```c
#include<stdio.h>
void main()
{
 float a,b,x=0;
 int c;
 printf("Enter number ");
 scanf("%f",&a);
 printf("Enter option:");
 scanf(" %d",&c);
 switch(c)
 {
        case 1:
                printf("\nEnter second number");
                scanf("%f",&b);
                x=a+b;
          printf("Result: %f",x);
                break;
        case 2:
                printf("\nEnter second number");
                scanf("%f",&b);
                x=a-b;
                printf("Result: %f",x);
        break;
```

```c
        case 3:
                printf("\nEnter second number");
                scanf("%f",&b);
                x=a*b;
           printf("Result: %f",x);
                break;
        case 4:
                printf("\nEnter second number");
                scanf("%f",&b);
                x=a/b;
           printf("Result: %f",x);
                break;
        case 5:
                x=a*a;
                printf("Result: %f",x);
            break;
        default:
                printf("INVALID OPERATION.");
 }
}
```

# Output:

cseb131@jtl-29:~$ ./calc

Enter number 5

Enter option:1


Enter second number7

Result: 12.000000

## 9. Write a C program to check if a number has three consecutive 5s. If yes, print YES, else print NO

```c
#include<stdio.h>
void main()
{
printf("Enter number ");
int n,flag=0,a,b,c;
scanf("%d",&n);
while(n>0)
{       a=n%10;
        b=(n/10)%10;
        c=(n/100)%10;
        if(a==5 && b==5 && c==5)
        {       flag=1;
                break;
        }
        n/=10;
}
if(flag)
{       printf(" Yes"); }
else
{       printf(" No ");
}}
```

## Output:

cseb131@jtl-29:~$ ./consec

Enter number 57855553

 Yes

## 10. Implement the solution for (1) without a condition.

#include <stdio.h>

void main()

{

int n;

printf("Enter a number ");

scanf("%d",&n);

(n%2 && printf("Odd number"))|| printf("Even number");

}

# Output:

cseb131@jtl-29:~$ ./oddevencondition

Enter a number 8

Even number