NAME: REYA JESLYN SAHAYA SAMUEL
ROLL NO.: 2210110505

PRACTICE LAB ASSIGNMENT 4

1. Write a Program to print the sum of the following series:

1 + ½ + 1/3 + ¼ + ……..+ 1/n

Take the value of 'n' from the user.

CODE

```
##include<stdio.h>
void main()
{
int n;
float i, d, s;
s = 0;
printf("Enter an integer value, n, to find the sum of its 1/n series\n");
scanf("%d", &n);
for(i = 1; i <= n; i++)
{
d = (1 / i);
s = s + d;
}
printf("The sum of the 1/n series is %f", s);
}
```

SS of the OUTPUT

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```c
/*******************************************************************************/
#include<stdio.h>
void main()
{
int n;
float i, d, s;
s = 0;
printf("Enter an integer value, n, to find the sum of its 1/n series\n");
scanf("%d", &n);
for(i = 1; i <= n; i++)
{
d = (1 / i);
s = s + d;
}
printf("The sum of the 1/n series is %f", s);
}

```

input

```
Enter an integer value, n, to find the sum of its 1/n series
3
The sum of the 1/n series is 1.833333

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

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2. Write a Program to print the sum of the following series:

1 + ½2 + 1/32 + ¼2 + ……..+ 1/n2

Take the value of ‘n’ from the user.

CODE

```
#include<stdio.h>
void main()
{
int n;
float i, d, s;
s = 0;
printf("Enter an integer value, n, to find the sum of its 1/n^2 series\n");
scanf("%d", &n);
for(i = 1; i <= n; i++)
{
d = (1 / (i * i));
s = s + d;
}
printf("The sum of the 1/n^2 series is %f", s);
}
```

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```
8  ********************************************************************************/
9  #include<stdio.h>
10 void main()
11 {
12 int n;
13 float i, d, s;
14 s = 0;
15 printf("Enter an integer value, n, to find the sum of its 1/n^2 series\n");
16 scanf("%d", &n);
17 for(i = 1; i <= n; i++)
18 {
19 d = (1 / (i * i));
20 s = s + d;
21 }
22 printf("The sum of the 1/n^2 series is %f", s);
23 }
24
```

input

```
Enter an integer value, n, to find the sum of its 1/n^2 series
3
The sum of the 1/n^2 series is 1.361111

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

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3. Write a Program to print the sum of the following series:

1/2 + 2/3 + 3/4 + 4/5 + ……..+ n/n+1

Take the value of ‘n’ from the user.

CODE

```
#include<stdio.h>
void main()
{
int n;
float i, d, s;
s = 0;
printf("Enter an integer value, n, to find the sum of its n/n+1 series\n");
scanf("%d", &n);
for(i = 1; i <= n; i++)
{
d = i / (i + 1);
s = s + d;
}
printf("The sum of the n/n+1 series is %f", s);
}
```

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```
8  ********************************************************************************/
9  #include<stdio.h>
10 void main()
11 {
12 int n;
13 float i, d, s;
14 s = 0;
15 printf("Enter an integer value, n, to find the sum of its n/n+1 series\n");
16 scanf("%d", &n);
17 for(i = 1; i <= n; i++)
18 {
19 d = i / (i + 1);
20 s = s + d;
21 }
22 printf("The sum of the n/n+1 series is %f", s);
23 }
24
```

input

```
Enter an integer value, n, to find the sum of its n/n+1 series
3
The sum of the n/n+1 series is 1.916667

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

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4. Write a Program to print the sum of the following series:

1 + ½! + 1/3! + ¼! + ……..+ 1/n!

CODE

```
#include<stdio.h>
void main()
{
int n;
float i, d, s;
s = 0;
d = 1;
printf("Enter an integer value, n, to find the sum of its 1/n! series\n");
scanf("%d", &n);
for(i = 1; i <= n; i++)
{
d = d * i;
s = s + (1 / d);
}
printf("The sum of the 1/n! series is %f", s);
}
```

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```
8  ********************************************************************************/
9  #include<stdio.h>
10 void main()
11 {
12 int n;
13 float i, d, s;
14 s = 0;
15 d = 1;
16 printf("Enter an integer value, n, to find the sum of its 1/n! series\n");
17 scanf("%d", &n);
18 for(i = 1; i <= n; i++)
19 {
20 d = d * i;
21 s = s + (1 / d);
22 }
23 printf("The sum of the 1/n! series is %f", s);
24 }
```

input

```
Enter an integer value, n, to find the sum of its 1/n! series
3
The sum of the 1/n! series is 1.666667

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

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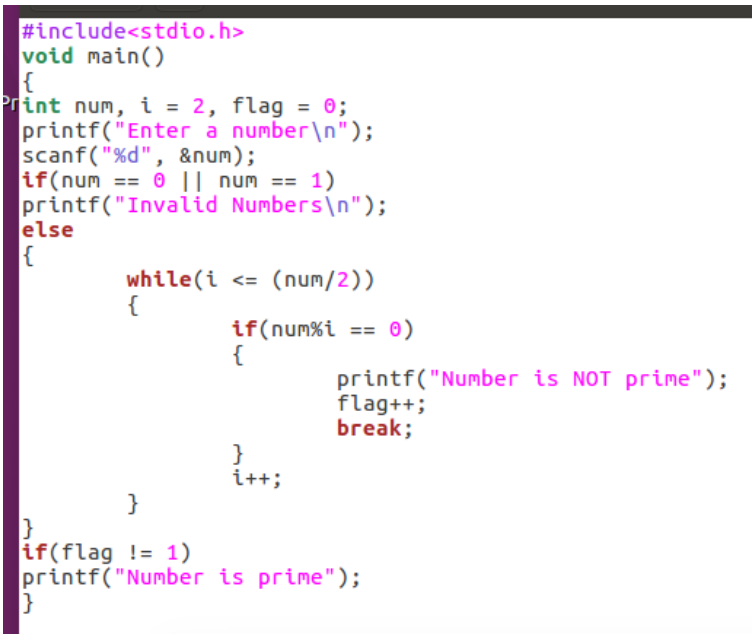
5. Write a program to check whether a number is prime or not.

CODE

```
#include<stdio.h>
void main()
{
int num, i = 2, flag = 0;
printf("Enter a number\n");
scanf("%d", &num);
if(num == 0 || num == 1)
printf("Invalid Numbers\n");
else
{
while(i <= (num/2))
{
if(num%i == 0)
{
printf("Number is NOT prime");
flag++;
break;
}
i++;
}
}
if(flag != 1)
printf("Number is prime");
}
```



SS of the OUTPUT

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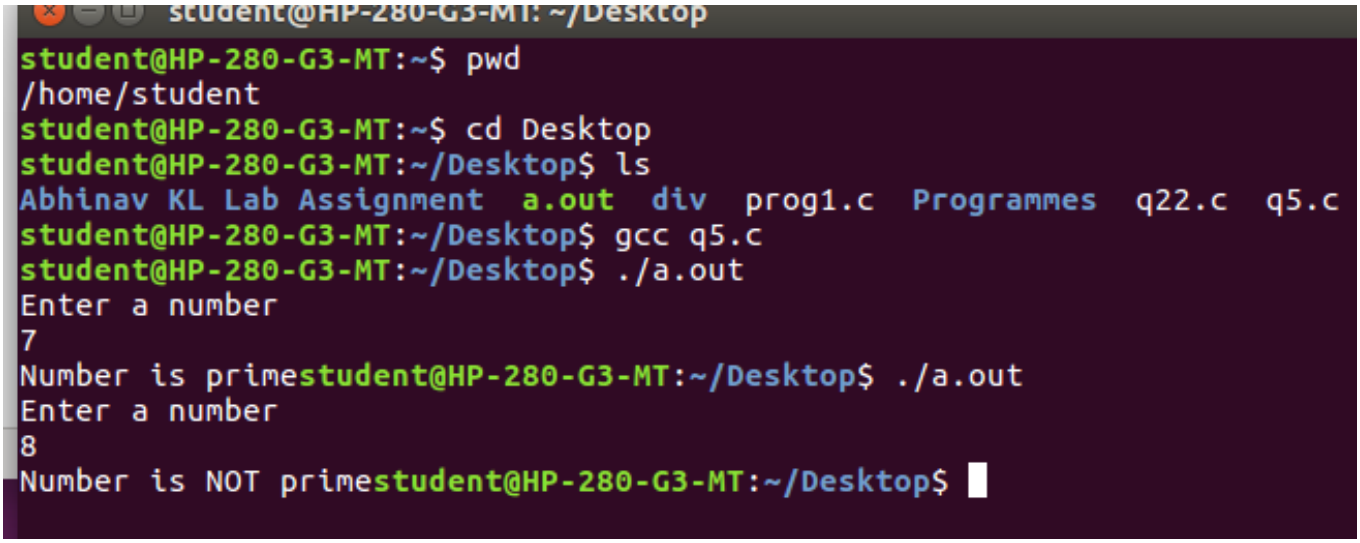

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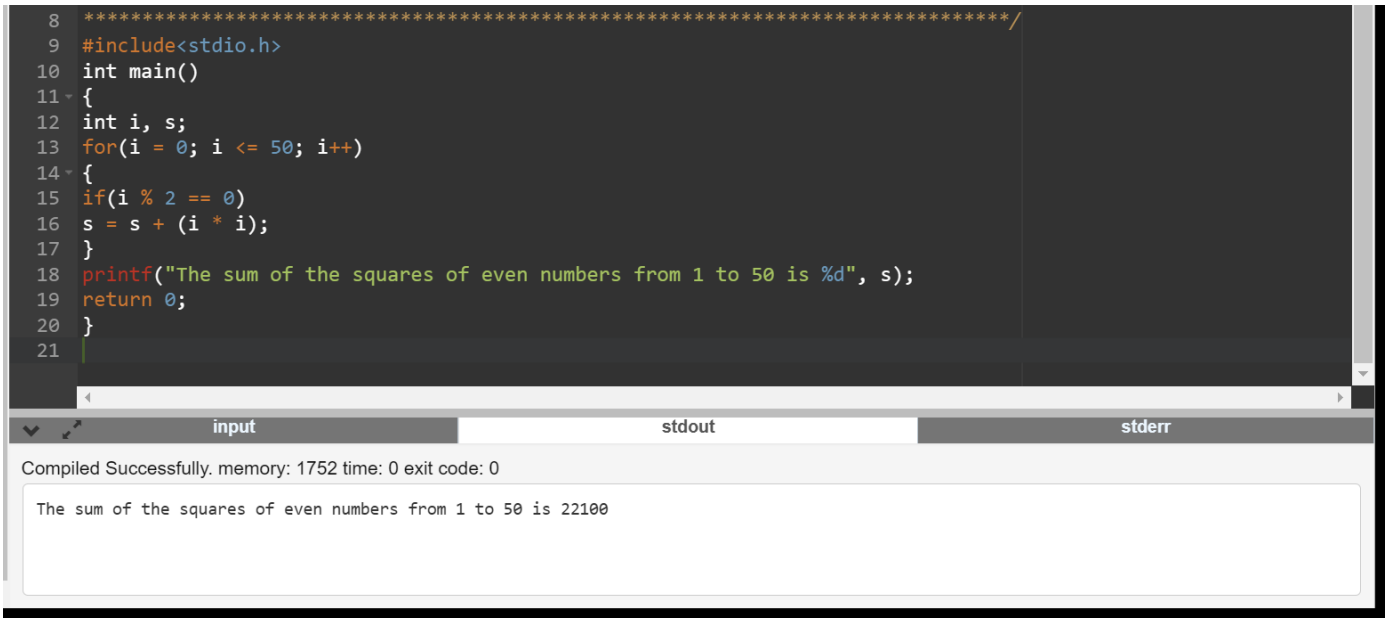
6. Write a program to print the sum of squares of even numbers from 1 to 50.

CODE

```
#include<stdio.h>
int main()
{
int i, s;
for(i = 0; i <= 50; i++)
{
if(i % 2 == 0)
s = s + (i * i);
}
printf("The sum of the squares of even numbers from 1 to 50 is %d", s);
return 0;
}
```

SS of the OUTPUT



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7. Write a program to print the multiplication table of the number entered by the user. The table should get displayed in the following form.

7 * 1 = 7

7 * 2 = 14

.....

7 * 10 = 70

CODE

```
#include<stdio.h>
void main()
{
int i, n, d;
printf("Enter any integer to know it's multiplication table\n");
scanf("%d%d%d", &n, &i, &d);
for(i = 1; i <= 10; i++)
        {
        d = (n * i);
        printf("%d * %d = %d\n", n, i, d);
        }
}
```

SS of the OUTPUT

```
student@HP-280-G3-MT:~$ pwd
/home/student
student@HP-280-G3-MT:~$ cd Desktop
student@HP-280-G3-MT:~/Desktop$ ls
Abhinav KL Lab Assignment  div      Programmes  q10.c  q22.c  q7.c
a.out                      prog1.c  Q10         q11.c  q6.c
student@HP-280-G3-MT:~/Desktop$ gcc q7.c
student@HP-280-G3-MT:~/Desktop$ ./a.out
Enter any integer to know it's multiplication table
7
./a.out
7 * 1 = 7
7 * 2 = 14
7 * 3 = 21
7 * 4 = 28
7 * 5 = 35
7 * 6 = 42
7 * 7 = 49
7 * 8 = 56
7 * 9 = 63
7 * 10 = 70
student@HP-280-G3-MT:~/Desktop$
```

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8. Write a program to calculate and print sum of odd numbers and sum of even numbers separately from 1 to 500, such that the number is divisible both by 7 and 9.

CODE

```
#include<stdio.h>

int main()

{

int i, e, o;

for(i = 0; i <= 500; i++)

{

if(i % 2 == 0 && i % 63 == 0)

e = e + i;

else if(i % 2 != 0 && i % 63 == 0)

o = o + i;

}

printf("The sum of even numbers that are divisible by both 7 and 9 from 1 to 500 is %d\n", e);

printf("The sum of odd numbers that are divisible by both 7 and 9 from 1 to 500 is %d", o);

return 0;

}
```

SS of the OUTPUT

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```
8  ********************************************************************************/
9  #include<stdio.h>
10 int main()
11 {
12 int i, e, o;
13 for(i = 0; i <= 500; i++)
14 {
15 if(i % 2 == 0 && i % 63 == 0)
16 e = e + i;
17 else if(i % 2 != 0 && i % 63 == 0)
18 o = o + i;
19 }
20 printf("The sum of even numbers that are divisible by both 7 and 9 from 1 to 500 is %d\n", e);
21 printf("The sum of odd numbers that are divisible by both 7 and 9 from 1 to 500 is %d", o);
22 return 0;
23 }
24
```

input | stdout | stderr

Compiled Successfully. memory: 1788 time: 0 exit code: 0

```
The sum of even numbers that are divisible by both 7 and 9 from 1 to 500 is 756
The sum of odd numbers that are divisible by both 7 and 9 from 1 to 500 is 1008
```

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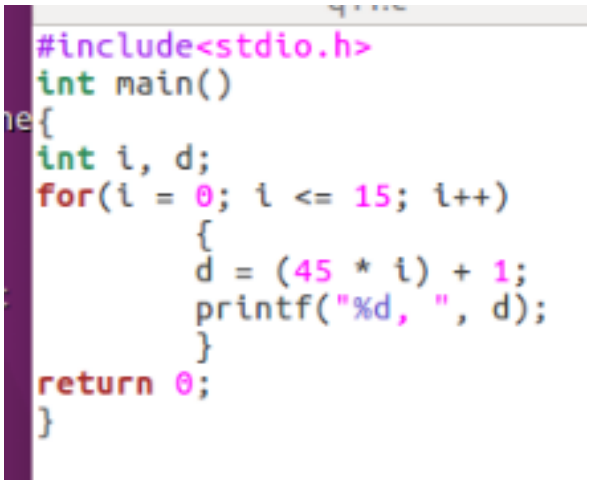
9. Write a program to display following sequence of numbers:

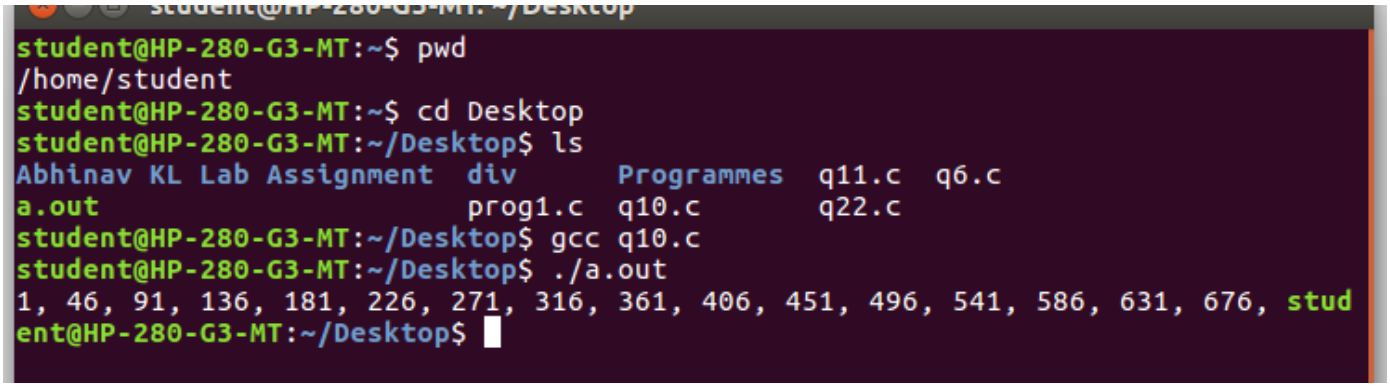
1, 46, 91, ……., 586, 631, 676.

CODE

```
#include<stdio.h>

int main()

{

int i, d;

for(i = 0; i <= 15; i++)

{

d = (45 * i) + 1;

printf("%d, ", d);

}

return 0;

}
```



SS of the OUTPUT



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10. Write a program to calculate tax, given the following conditions:

- if income is less than 1, 50, 000 then no tax
- if taxable income is in the range 1, 50, 001 – 300, 000 then charge 10% tax
- if taxable income is in the range 3, 00, 001 – 500, 000 then charge 20% tax
- if taxable income is above 5, 00, 001 then charge 30% tax

CODE

```
#include<stdio.h>
void main()
{
float i, n;
printf("Enter your income\n");
scanf("%f", &i);
if(i < 0)
printf("The entered number is out of range/invlaid");
else if(i >= 0 && i <= 150000)
printf("There are no taxable charges");
else if(i > 150000 && i <= 300000)
{
   n = ((i - 150000) * 0.1);
   printf("You are charged Rs. %f tax", n);
}
else if(i > 300000 && i <= 500000)
{
   n = 30000 + ((i - 300000) * 0.2);
   printf("You are charged Rs. %f tax", n);
}
else if(i > 500000)
{
```

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```
    n = 80000 + ((i - 500000) * 0.3);

    printf("You are charged Rs. %f tax", n);

}

}
```

SS of the OUTPUT

```c
#include<stdio.h>
void main()
{
float i, n;
printf("Enter your income\n");
scanf("%f", &i);
if(i < 0)
printf("The entered number is out of range/invlaid");
else if(i >= 0 && i <= 150000)
printf("There are no taxable charges");
else if(i > 150000 && i <= 300000)
{
    n = ((i - 150000) * 0.1);
    printf("You are charged Rs. %f tax", n);
}
else if(i > 300000 && i <= 500000)
{
    n = 30000 + ((i - 300000) * 0.2);
    printf("You are charged Rs. %f tax", n);
}
else if(i > 500000)
{
    n = 80000 + ((i - 500000) * 0.3);
    printf("You are charged Rs. %f tax", n);
}
}
```

input

```
Enter your income
170000
You are charged Rs. 2000.000000 tax

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

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11. Write a program that accepts the current date and the date of birth of the user. Then calculate the age of the user and display it on the screen. Note that the age should be displayed in terms of Years, months and days.

CODE

```
#include<stdio.h>
void main()
{
  int cd, cm, cy, bd, bm, by, nd, nm, ny, m, D, M, F;
  printf ("Enter the current date DD\n");
  scanf ("%d", &cd);
  printf ("Enter the current month MM\n");
  scanf ("%d", &cm);
  printf ("Enter the current year YYYY\n");
  scanf ("%d", &cy);
  printf ("Enter your birth date DD\n");
  scanf ("%d", &bd);
  printf ("Enter your birth month MM\n");
  scanf ("%d", &bm);
  printf ("Enter your birth year YYYY\n");
  scanf ("%d", &by);
{
  ny = (((cy * 10000) + (cm * 100) + cd) - ((by * 10000) + (bm * 100) + bd)) / 10000;
  {
    if (ny < 0)
    printf("Invalid birth date/current date entered");
  }
  m = (((cm * 100) + cd) - ((bm * 100) + bd)) / 100;
    {
```

```
    if (m < 0)
        {
            nm = 11 + m;
            if (cm < bm && cd > bd)
       nd = cd - bd;
       else if (cm < bm && cd < bd)
            {
             M = cm - 1;
             {
                if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
                     F = 31;
                else if (M == 4 || M == 6 || M == 9 || M == 11)
                     F = 30;
                else if (M == 2 && cy / 4 != 0)
                     F = 28;
                else if (M == 2 && cy / 4 == 0)
                     F = 29;
             }
             nd = (F - bd) + cd;
            }
        }
    else if (m > 0)
    {
       nm = m;
       if (cm > bm && cd < bd)
            {
             M = cm - 1;
```

```
            {
              if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
                  F = 31;
              else if (M == 4 || M == 6 || M == 9 || M == 11)
                  F = 30;
              else if (M == 2 && cy / 4 != 0)
                  F = 28;
              else if (M == 2 && cy / 4 == 0)
                  F = 29;
            }
            nd = (F - bd) + cd;
          }
    else if (cm > bm && cd > bd)
    nd = cd - bd;
}
else if (m == 0 && cd > bd)
{
    nm = 0;
    nd = cd - bd;
}
else if (m == 0 && cd < bd)
{
    nm = 11;
          M = cm - 1;
          {
           if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
                F = 31;
```

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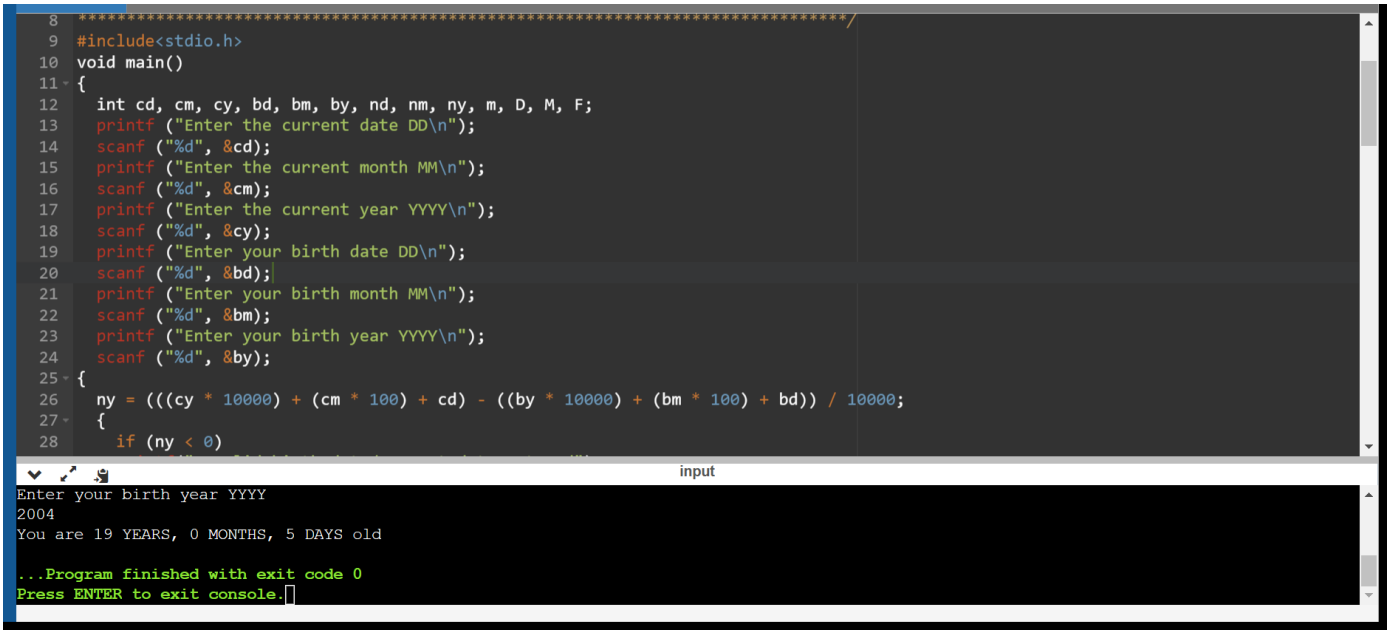
```
            else if (M == 4 || M == 6 || M == 9 || M == 11)
                F = 30;
            else if (M == 2 && cy / 4 != 0)
                F = 28;
            else if (M == 2 && cy / 4 == 0)
                F = 29;
           }
           nd = (F - bd) + cd;
         }
   }
}
printf ("You are %d YEARS, %d MONTHS, %d DAYS old", ny, nm, nd);
}
```

SS of the OUTPUT



```
#include<stdio.h>
void main()
{
  int cd, cm, cy, bd, bm, by, nd, nm, ny, m, D, M, F;
  printf ("Enter the current date DD\n");
  scanf ("%d", &cd);
  printf ("Enter the current month MM\n");
  scanf ("%d", &cm);
  printf ("Enter the current year YYYY\n");
  scanf ("%d", &cy);
  printf ("Enter your birth date DD\n");
  scanf ("%d", &bd);
  printf ("Enter your birth month MM\n");
  scanf ("%d", &bm);
  printf ("Enter your birth year YYYY\n");
  scanf ("%d", &by);
{
  ny = (((cy * 10000) + (cm * 100) + cd) - ((by * 10000) + (bm * 100) + bd)) / 10000;
  {
    if (ny < 0)
```

```
input
Enter your birth year YYYY
2004
You are 19 YEARS, 0 MONTHS, 5 DAYS old

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

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```
    printf("Invalid birth date/current date entered");
  }
  m = (((cm * 100) + cd) - ((bm * 100) + bd)) / 100;
    {
      if (m < 0)
      {
          nm = 11 + m;
          if (cm < bm && cd > bd)
          nd = cd - bd;
          else if (cm < bm && cd < bd)
          {
            M = cm - 1;
            {
                if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
                F = 31;
                else if (M == 4 || M == 6 || M == 9 || M == 11)
                F = 30;
                else if (M == 2 && cy / 4 != 0)
                F = 28;
                else if (M == 2 && cy / 4 == 0)
                F = 29;
```

input

```
Enter your birth year YYYY
2004
You are 19 YEARS, 0 MONTHS, 5 DAYS old

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

```
                F = 29;
            }
            nd = (F - bd) + cd;
          }
      }
      else if (m > 0)
      {
          nm = m;
          if (cm > bm && cd < bd)
          {
            M = cm - 1;
            {
                if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
                F = 31;
                else if (M == 4 || M == 6 || M == 9 || M == 11)
                F = 30;
                else if (M == 2 && cy / 4 != 0)
                F = 28;
                else if (M == 2 && cy / 4 == 0)
                F = 29;
```

input

```
Enter your birth year YYYY
2004
You are 19 YEARS, 0 MONTHS, 5 DAYS old

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

```
            }
            nd = (F - bd) + cd;
          }
          else if (cm > bm && cd > bd)
          nd = cd - bd;
      }
      else if (m == 0 && cd > bd)
      {
          nm = 0;
          nd = cd - bd;
      }
      else if (m == 0 && cd < bd)
      {
          nm = 11;
          M = cm - 1;
          {
           if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
           F = 31;
           else if (M == 4 || M == 6 || M == 9 || M == 11)
           F = 30;
           else if (M == 2 && cy / 4 != 0)
```

input

```
Enter your birth year YYYY
2004
You are 19 YEARS, 0 MONTHS, 5 DAYS old

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

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```
80        else if (m == 0 && cd < bd)
81        {
82            nm = 11;
83            M = cm - 1;
84            {
85             if (M == 1 || M == 3 || M == 5 || M == 7 || M == 8 || M == 10 || M == 12)
86              F = 31;
87             else if (M == 4 || M == 6 || M == 9 || M == 11)
88              F = 30;
89             else if (M == 2 && cy / 4 != 0)
90              F = 28;
91             else if (M == 2 && cy / 4 == 0)
92              F = 29;
93            }
94            nd = (F - bd) + cd;
95         }
96      }
97  }
98  printf ("You are %d YEARS, %d MONTHS, %d DAYS old", ny, nm, nd);
99  }
100
```

input

```
Enter your birth year YYYY
2004
You are 19 YEARS, 0 MONTHS, 5 DAYS old

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

```
80        else if (m == 0 && cd < bd)
81        {
82            nm = 11;
```

input

```
Enter the current date DD
19
Enter the current month MM
02
Enter the current year YYYY
2023
Enter your birth date DD
14
Enter your birth month MM
02
Enter your birth year YYYY
2004
You are 19 YEARS, 0 MONTHS, 5 DAYS old

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