Programming In C

Lab File

Subject Code: 16BCA1C05L
Class: I Year I Semester (BCA)

Experiments No.: 7 to 13

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Experiment 07:

C program to find the largest of three numbers (if).

Code:

```
#include<stdio.h>
int main()
{
 int a, b, c, L;
 printf("\n C program to find the largest of three
  numbers (if). -By Suman Garai");
 printf("\n Enter the Value a, b & c: ");
 scanf("%d, %d, %d", &a, &b, &c);
 if ((a>b)&&(a>c)) L = a;
 if ((b>c)&&(b>a)) L = b;
 if ((c>a)&&(c>b)) L = c;
 printf("\n The Value of the Largest Number: %d \n",
  L);
 return 0;
}
```

Output:

Experiment 08:

C program to check whether a given year is a leap year (if-else).

Code:

```
#include <stdio.h>
void main()
{
 int y;
 printf("\n Program to Check whether a year is Leap
   year or Not. -By Suman Garai ");
 printf("\n Enter a year: ");
 scanf("%d", &y );
 if (y % 400 == 0 || y % 100 == 0 && y % 4 == 0)
 {
  printf(" %d is a leap year. \n", y);
 }
 else if (y % 100 == 0)
 {
  printf(" %d is not a leap year. \n", y);
 }
 else
 {
  printf(" %d is not a leap year. \n", y);
 }
}
```

Output:

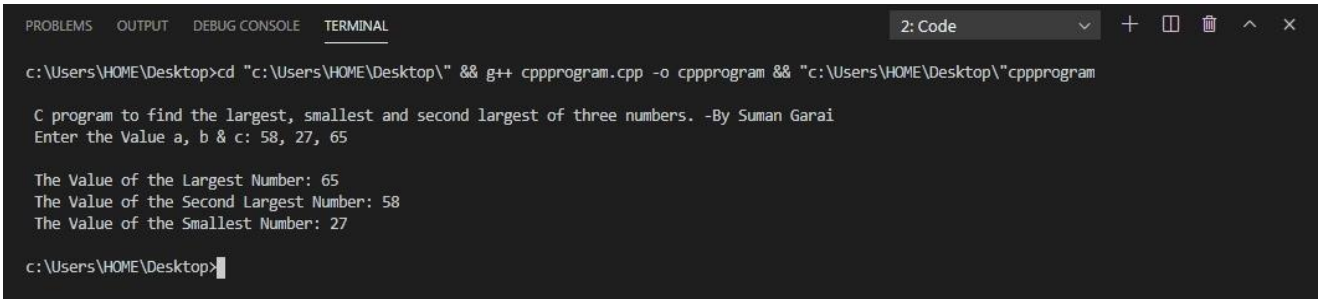
Experiment 09:

C program to find the largest, smallest and second largest of three numbers.

Code:

```
#include<stdio.h>
int main()
{
 int a, b, c;
 int L, S, SL;
 printf("\n C program to find the largest, smallest and
  second largest of three numbers. -By Suman Garai");
 printf("\n Enter the Value a, b & c: ");
 scanf("%d, %d, %d", &a, &b, &c);
 L = a;
 if (b > L) L = b;
 if (c > L) L = c;
 S = a;
 if (b < S) S = b;
 if (c < S) S = c;
 SL = ( a + b + c ) - ( L + S );
 printf("\n The Value of the Largest Number: %d", L);
 printf("\n The Value of the Second Largest Number: %d",
  SL);
 printf("\n The Value of the Smallest Number: %d \n",
  S);
 return 0;
}
```

Output:



Experiment 10:

C program to find the second largest and second smallest of four numbers (else-if).

Code:

```
#include<stdio.h>
int main()
{
 int a, b, c, d;
 float l, s, n;
 float max, min, sl, ss;
 printf("\nTo Print the 2nd Largest and Smallest Number out
  of the Inputs - By Suman Garai");
 printf("\n Enter 1st Number: ");
 scanf("%d", &a);
 printf(" Enter 2nd Number: ");
 scanf("%d", &b);
 printf(" Enter 3rd Number: ");
 scanf("%d", &c);
 printf(" Enter 4th Number: ");
 scanf("%d", &d);
 l = a;
 if (b > l) l = b;
 if (c > l) l = c;
 if (d > l) l = d;
 s = a;
 if (b < s) s = b;
 if (c < s) s = c;
 if (d < s) s = d;
 n = ( a + b + c + d ) - ( l + s );
 if ((a!=l) && (a!=s)) max = a;
 else if ((b!=l) && (b!=s)) max = b;
 else max = d;
 min = n - max;
 if ( max > min ) { sl = max; ss = min; }
 else { ss = max; sl = min; }
 printf("\n The 2nd Largest Number: %f", sl);
 printf("\n The 2nd Smallest Numbers: %f \n", ss);
 return 0;
}
```

Output:

Experiment 11:

C program to check whether a given date is valid or not.

Code:

```
#include <stdio.h>
int main()
{
    int dd,mm,yy;
    printf("\nC program to output the next date for a given date
     (else-if). -By Suman Garai ");
    printf("\nEnter date (DD/MM/YYYY format): ");
    scanf("%d/%d/%d",&dd,&mm,&yy);
    if(yy>=1900 && yy<=9999)
    {
        if(mm>=1 && mm<=12)
        {
            if((dd>=1 && dd<=31) && (mm==1 || mm==3 || mm==5 ||
             mm==7 || mm==8 || mm==10 || mm==12))
                printf("Date is valid.\n");
            else if((dd>=1 && dd<=30) && (mm==4 || mm==6 || mm==9
             || mm==11))
                printf("Date is valid.\n");
            else if((dd>=1 && dd<=28) && (mm==2))
                printf("Date is valid.\n");
            else if(dd==29 && mm==2 && (yy%400==0 ||(yy%4==0 &&
             yy%100!=0)))
                printf("Date is valid.\n");
            else
                printf("Date is invalid. Check Date.\n");
        }
        else
        {
            printf("Date is invalid. Check Month.\n");
        }
    }
    else
    {
        printf("Date is not valid. Check Year.\n");
    }

    return 0;
}
```

Output:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
2: Code
c:\Users\HOME\Desktop>cd "c:\Users\HOME\Desktop\" && g++ prog13.cpp -o prog13 && "c:\Users\HOME\Desktop\"prog13
C program to output the next date for a given date (else-if). -By Suman Garai
Enter date (DD/MM/YYYY format): 29/02/2020
Date is valid.
c:\Users\HOME\Desktop>

Experiment 12:

C program to find the roots of a quadratic equation (else-if).

Code:

```
#include<stdio.h>
#include<math.h>
int main()
{
    printf("\nC program to find the roots of a quadratic equation
     (else-if) - By Suman Garai");
    float a, b, c;
    float desc, root1, root2;
    printf("\nEnter the constants: ");
    scanf("%f %f %f", &a,&b,&c);
    desc = b * b - 4 * a * c;
    if ( desc > 0)
    {
       printf("\n Roots are Real");
        root1 = (-b + sqrt(desc))/(2.0 * a);
       root2 = (-b - sqrt(desc))/(2.0 * a);
       printf("\nFirst Root : %f", root1);
       printf("\nSecond Root : %f\n", root2);
     }
     else if ( desc == 0)
     {
          printf("\n Roots are Equal");
          root1 = -b / (2.0 * a);
          printf("\nThe Root is : %f\n", root1);
     }
     else
     {
          printf("\n Roots are Imaginary");
        root1 = -b / (2.0 * a);
        root2 = sqrt(abs(desc)) / (2.0 * a);
        printf("\nReal part  : %f", root1);
        printf("\nImaginary part : %f\n", root2);
     }
    return 0;
}
```

Output:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
2: Code
c:\Users\HOME\Desktop>cd "c:\Users\HOME\Desktop\" && g++ cppprogram.cpp -o cppprogram && "c:\Users\HOME\Desktop\"cppprogram
C program to find the roots of a quadratic equation (else-if) - By Suman Garai
Enter the constants: 5 8 9
Roots are Imaginary
Real part : -0.800000
Imaginary part : 1.077033
c:\Users\HOME\Desktop>

Experiment 13:

C program to output the next date for a given date (else-if).

Code:

```
#include <stdio.h>
int main()
{
    int dd,mm,yy;
    printf("\nC program to output the next date for a given date
          (else-if). -By Suman Garai");
    printf("\nEnter date (DD/MM/YYYY format): ");
    scanf("%d/%d/%d",&dd,&mm,&yy);
    if ( dd==31 )
    {
        if ( (mm==1) || (mm==3) || (mm==5) || (mm==7) || (mm==8)
          || (mm==10) )
        {
            dd = 1;
            mm = mm + 1;
        }
        else if ( mm==12 )
        {
            dd = 1;
            mm = 1;
            yy = yy + 1;
        }
        else
            printf("\nDate is invalid.\n");
    }
    else if ( dd==30 )
    {
        if ( (mm==1) || (mm==3) || (mm==5) || (mm==7) || (mm==8)
          || (mm==10) )
            dd = dd + 1;

        else if ( (mm==4) ||(mm==6) ||(mm==9) ||(mm==11) )
        {
            dd = 1;
            mm = mm + 1;
        }
        else
            printf("\nDate is invalid.\n");
    }
```

```
    else if ( (dd==29) && (mm==2) )
    {
        if ( (yy%400==0) || (yy%100==0 && yy%4==0) )
        {
            dd = 1;
            mm = mm + 1;
        }
        else
            printf("\nDate is invalid.\n");
    }
    else if ( (dd==28) && (mm==2) )
    {
        if ( (yy%400==0) || (yy%100==0 && yy%4==0) )
            dd = dd + 1;

        else
        {
            dd = 1;
            mm = mm + 1;
        }
    }
    else if ( ((dd>=1) && (dd<=29)) && ((mm!=2) && (mm>=1 &&
          mm<=12)) )
        dd = dd + 1;
    else if ( ((dd>=1) && (dd<=27)) && mm==2 )
        dd = dd + 1;
    else
        printf("\nDate is invalid.\n");
    printf("\nThe Next Date: %d/%d/%d\n", dd, mm, yy );
    return 0;
}
```

Output:

-- THE END --