



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:



The screenshot shows a terminal window with the following content:

```
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 largest of three numbers (if). -By Suman Garai
Enter the Value a, b & c: 8, 9, 3

The Value of the Largest Number: 9

c:\Users\HOME\Desktop>
```

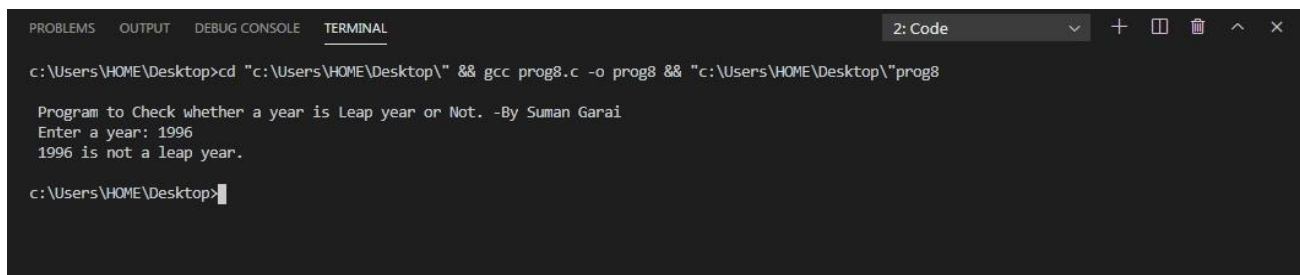
Experiment 08:

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:



The screenshot shows a terminal window with the following content:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
c:\Users\HOME\Desktop>cd "c:\Users\HOME\Desktop\" && gcc prog8.c -o prog8 && "c:\Users\HOME\Desktop\prog8

Program to Check whether a year is Leap year or Not. -By Suman Garai
Enter a year: 1996
1996 is not a leap year.

c:\Users\HOME\Desktop>
```

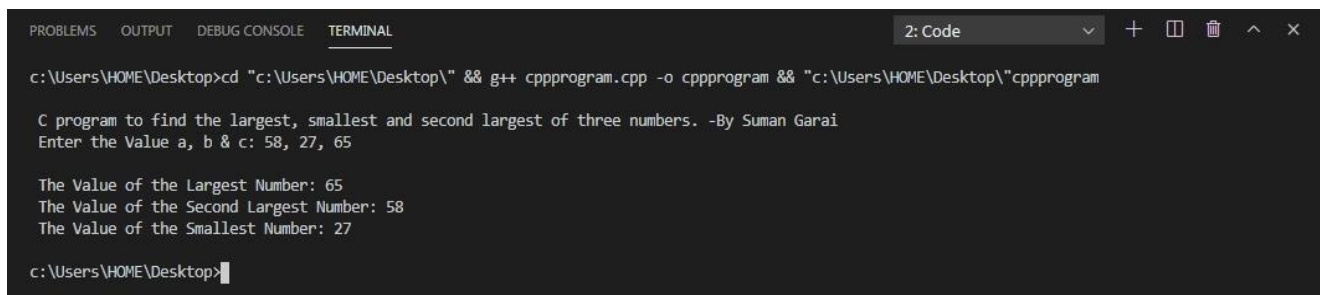
Experiment 09:

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:



```
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 largest, smallest and second largest of three numbers. -By Suman Garai
Enter the Value a, b & c: 58, 27, 65

The Value of the Largest Number: 65
The Value of the Second Largest Number: 58
The Value of the Smallest Number: 27

c:\Users\HOME\Desktop>
```

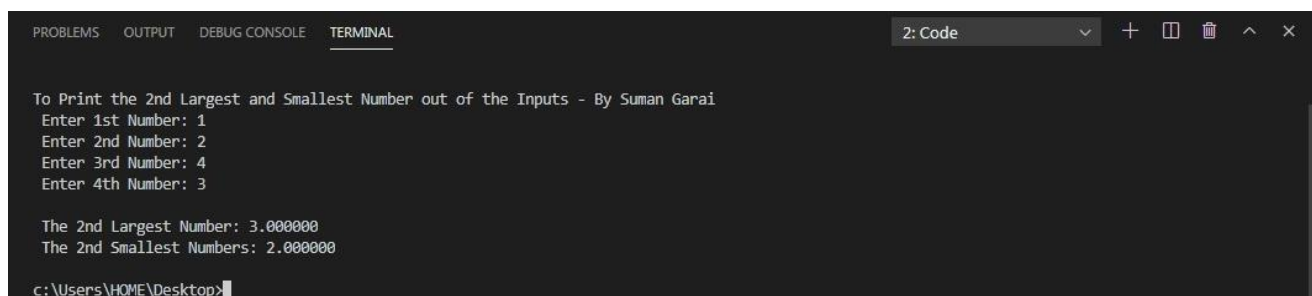
Experiment 10:

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:

A screenshot of a code editor's terminal window. The window has tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL', with 'TERMINAL' being the active tab. The title bar shows '2: Code' and standard window controls. The terminal output displays the program's execution: a prompt to print the 2nd largest and smallest numbers, followed by four input prompts (1st, 2nd, 3rd, 4th numbers) with values 1, 2, 4, and 3 respectively. The final output shows the 2nd largest number as 3.000000 and the 2nd smallest number as 2.000000. The command prompt at the bottom shows the file path 'c:\Users\HOME\Desktop>'.

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
To Print the 2nd Largest and Smallest Number out of the Inputs - By Suman Garai
Enter 1st Number: 1
Enter 2nd Number: 2
Enter 3rd Number: 4
Enter 4th Number: 3

The 2nd Largest Number: 3.000000
The 2nd Smallest Numbers: 2.000000

c:\Users\HOME\Desktop>
```

Experiment 11:

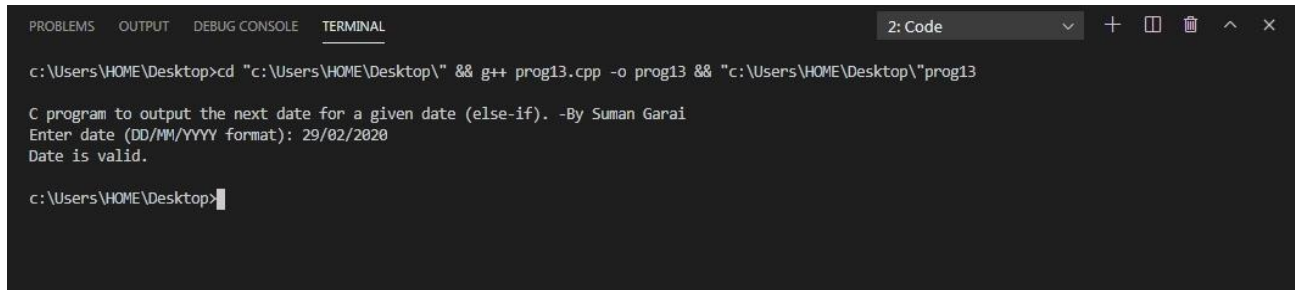
C program to check whether a given date is valid or not.

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:



The screenshot shows a terminal window with a dark background. At the top, there are tabs for 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL'. The 'TERMINAL' tab is active. In the top right corner of the terminal, there is a dropdown menu showing '2: Code' and several icons for window management. The terminal content shows the following commands and output:

```
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  +  [ ]  [X]  ^  X

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:

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
2: Code
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\HOME>cd "c:\Users\HOME\Desktop\cpp\" && g++ topinthenextdate.cpp -o t
oprinthenextdate && "c:\Users\HOME\Desktop\cpp\"topinthenextdate

C program to output the next date for a given date (else-if). -By Suman Garai
Enter date (DD/MM/YYYY format): 28/02/1990

The Next Date: 1/3/1990

c:\Users\HOME\Desktop\cpp>

```

-- THE END --