**BANSAL INSTITUTE OF SCIENCE & TECHNOLOGY,**

**BHOPAL**

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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COMPUTER WORKSHOP**

**LAB FILE**

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**Subject Code : CS-306**

**Course : B.Tech III Sem**

**Submitted To: Submitted By:**

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**LIST OF EXPERIMENTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.NO.** | **NAME OF EXPERIMENT** | **EXPERIMENT DATE** | **SUBMISSION DATE** | **REMARK** |
| 1 | WAP to print table of a given number. |  |  |  |
| 2 | WAP to show swapping using Call by Value and Call by Reference. |  |  |  |
| 3 | WAP to print even and odd Numbers in the given range. |  |  |  |
| 4 | WAP to check whether a given year is leap year or not. |  |  |  |
| 5 | WAP to check whether a given number is prime or not. |  |  |  |
| 6 | WAP to find whether a given number is Palindrome or not. |  |  |  |
| 7 | WAP to calculate factorial of a given number using recursion. |  |  |  |
| 8 | WAP to perform all arithmetic operations using CASE statement. |  |  |  |
| 9 | WAP to print Fibonacci series up to n terms given by user. |  |  |  |
| 10 | WAP to print Addition of two matrices. |  |  |  |

## Lab Experiment No.1

**Objective: WAP to print table of a given number.**

**Implementation:**

#include <stdio.h>

#include<conio.h>

void main()

{

int n;

clrscr();

printf("Enter an integer: ");

scanf("%d", &n);

for (int i = 1; i <= 10; ++i)

{

printf("%d \* %d = %d \n", n, i, n \* i);

}

getch();

}

**Result:**

Enter an integer: 5

5\*1=5

5\*2=10

5\*=15

5\*4=20

5\*5=25

5\*6=30

5\*7=35

5\*8=40

5\*9=45

5\*10=50

## Lab Experiment No. 2

## Objective: WAP to show swapping using Call by Value and Call by Reference.

## Implementation:

## #include <stdio.h>

## #include<conio.h>

## void swapcbv(int x,int y)

## {

## int temp;

## temp=x;

## x=y;

## y=temp;

## }

## void swapcbr(int \*x,int \*y)

## {

## int temp;

## temp=\*x;

## \*x=\*y;

## \*y=temp;

## }

## int main()

## {

## int a,b;

## clrscr();

## printf("Please Enter two Numbers for Swapping:");

## scanf("%d%d", &a, &b);

## printf("a=%d and b=%d before swapping using call by value",a,b);

## swapcbv(a,b);

## printf("\na=%d and b=%d after swapping using call by value",a,b);

## printf("\nNo swapping in actual values using call by value");

## printf("\n\na=%d and b=%d before swapping using call by reference",a,b);

## swapcbr(&a,&b);

## printf("\na=%d and b=%d after swapping using call by reference",a,b);

## printf("\nIt is clear that call by reference swap the actual values");

## getch();

## return 0;

## }

**Result:**

## Please Enter two Numbers for Swapping:12 25

## a=12 and b=25 before swapping using call by value

## a=12 and b=25 after swapping using call by value

## No swapping in actual values using call by value

## a=12 and b=25 before swapping using call by reference

## a=25 and b=12 after swapping using call by reference

## It is clear that call by reference swap the actual values

## Lab Experiment No. 3

## Objective: WAP to print even and odd Numbers in the given range.

## Implementation:

#include <stdio.h>

#include<conio.h>

void main()

{

int LR,UR,i;

printf("Please Enter Lower and Upper range for Even and Odd Numbers: ");

scanf("%d%d",&LR,&UR);

printf("Even Numbers between %d and %d are:\n",LR,UR);

for(i=LR;i<=UR;i++)

{

if(i%2==0)

printf("%d ",i);

}

printf("\nOdd Numbers between %d and %d are:\n",LR,UR);

for(i=LR;i<=UR;i++)

{

if(i%2!=0)

printf("%d ",i);

}

getch();

}

**Result:**

Please Enter Lower and Upper range for Even and Odd Numbers: 12 20

Even Numbers between 12 and 20 are:

12 14 16 18 20

Odd Numbers between 12 and 20 are:

13 15 17 19

## Lab Experiment No. 4

## Objective: WAP to check whether a given year is leap year or not.

## Implementation:

#include <stdio.h>

#include <conio.h>

int main()

{

int year;

printf("Please Enter Year: ");

scanf("%d",&year);

if((year%4==0 && year%100 !=0) || (year%400==0))

{

printf("Year %d is a Leap Year\n",year);

}

else

{

printf("Year %d is a Not Leap Year\n",year);

}

printf("A leap year is exactly divisible by 4 except for century years.");

printf("\nThe century year is a leap year only if it is perfectly divisible by 400.");

getch();

return 0;

}

**Result:**

Please Enter Year: 2000

Year 2000 is a Leap Year

A leap year is exactly divisible by 4 except for century years.

The century year is a leap year only if it is perfectly divisible by 400.

## Lab Experiment No. 5

## Objective: WAP to check whether a given number is prime or not.

## Implementation:

#include <stdio.h>

#include <conio.h>

int main()

{

int n,i,flag=0;

printf("Please enter a number: ");

scanf("%d",&n);

for(i=2;i<(n/2);i++)

{

if(n%i==0)

{

flag=1;

break;

}

}

if(flag==1)

printf("Number %d is not a Prime Number",n);

else

printf("Number %d is a Prime Number\n",n);

getch();

return 0;

}

**Result:**

Please enter a number: 11

Number 11 is a Prime Number

## Lab Experiment No. 6

## Objective: WAP to find whether a given number is Palindrome or not.

## Implementation:

#include <stdio.h>

#include <conio.h>

int main() {

int n, reversed = 0, remainder, original;

printf("Enter an integer: ");

scanf("%d", &n);

original = n;

while (n != 0)

{

remainder = n % 10;

reversed = reversed \* 10 + remainder;

n /= 10;

}

if (original == reversed)

printf("Number = %d is a palindrome.", original);

else

printf("Number = %d is not a palindrome.", original);

getch();

return 0;

}

**Result:**

Enter an integer: 12521

Number = 12521 is a palindrome.

## Lab Experiment No. 7

## Objective: WAP to calculate factorial of a given number using recursion.

## Implementation:

## #include<stdio.h>

## #include<conio.h>

## long int fact(int n);

## int main() {

## int n;

## printf("Enter a positive integer: ");

## scanf("%d",&n);

## printf("Factorial of %d = %ld", n, fact (n));

## getch();

## return 0;

## }

## long int fact (int n) {

## if (n>=1)

## return n\* fact (n-1);

## else

## return 1;

## }

**Result:**

Enter a positive integer: 5

Factorial of 5 = 120

## Lab Experiment No. 8

## Objective: WAP to perform all arithmetic operations using CASE statement.

## Implementation:

#include<stdio.h>

#include<conio.h>

int main()

{

int a,b;

int op;

printf("Enter two values for Arithmatic Operation: ");

scanf("%d%d",&a,&b);

printf("Enter your Choice :\n 1. Addition\n 2. Subtraction\n 3. Multiplication\n 4. Division\n 5.

Modulus\n");

scanf("%d",&op);

switch(op)

{

case 1 :

printf("Sum of %d and %d is : %d",a,b,a+b);

break;

case 2 :

printf("Difference of %d and %d is : %d",a,b,a-b);

break;

case 3 :

printf("Multiplication of %d and %d is : %d",a,b,a\*b);

break;

case 4 :

printf("Division of Two Numbers is %d : ",a/b);

break;

case 5 :

printf("Modulus of Two Numbers is %d : ",a%b);

break;

default :

printf(" Enter Your Correct Choice.");

break;

}

getch();

return 0;

}

**Result:**

Enter two values for Arithmatic Operation: 2 5

Enter your Choice :

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Modulus

3

Multiplication of 2 and 5 is : 10

## Lab Experiment No. 9

## Objective: WAP to print Fibonacci series upto n terms given by user.

## Implementation:

#include <stdio.h>

#include <conio.h>

int main()

{

int i, n;

int t1 = 0, t2 = 1;

int nextTerm = t1 + t2;

printf("Enter the number of terms: ");

scanf("%d", &n);

printf("Fibonacci Series: %d, %d", t1, t2);

for (i = 3; i <= n; ++i)

{

printf(", %d", nextTerm);

t1 = t2;

t2 = nextTerm;

nextTerm = t1 + t2;

}

return 0;

}

**Result:**

Enter the number of terms: 5

Fibonacci Series: 0, 1, 1, 2, 3

## Lab Experiment No. 10

## Objective: WAP to print Addition of two matrices.

## Implementation:

#include <stdio.h>

#include<conio.h>

int main()

{

int r, c, a[100][100], b[100][100], sum[100][100], i, j;

printf("Enter the number of rows (between 1 and 100): ");

scanf("%d", &r);

printf("Enter the number of columns (between 1 and 100): ");

scanf("%d", &c);

printf("\nEnter %d elements of 1st matrix:\n",(r\*c));

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

for (j = 0; j < c; ++j) {

scanf("%d", &a[i][j]);

}

printf("Enter %d elements of 2nd matrix:\n",(r\*c));

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

for (j = 0; j < c; ++j) {

scanf("%d", &b[i][j]);

}

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

for (j = 0; j < c; ++j) {

sum[i][j] = a[i][j] + b[i][j];

}

printf("\nSum of two matrices: \n");

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

for (j = 0; j < c; ++j) {

printf("%d ", sum[i][j]);

if (j == c - 1) {

printf("\n");

}

}

return 0;

}

**Result:**

Enter the number of rows (between 1 and 100): 2

Enter the number of columns (between 1 and 100): 2

Enter 4 elements of 1st matrix:

1 2 3 4

Enter 4 elements of 2nd matrix:

2 3 4 5

Sum of two matrices:

3 5

7 9