



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE
SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103
Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC
Phone: (08352) 262770 Extn. 2223, 2224
Web: www.bldeasbkcp.ac.in E-mail: bldeasbkcp@gmail.com



BCA Programme

Lab Manual

for

PHP Lab

Sem VI



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



To display prime number between given range and also give the total count

1. PRIME.HTML

```
<html>
<body>

<h2>PRIME NO. in GIVEN RANGE</h2>

<form method="POST" action="prime.php">
  <label for="NUM - 1">Enter value for num1:</label><br>
  <input type="text" id="num1" name="num1"><br>

  <label for="NUM - 2 ">Enter value for num2:</label><br>
  <input type="text" id="num2" name="num2"><br><br><br>

  <input type="submit" value="Submit">
</form>
</body>
</html>
```

1. PRIME.PHP

```
<?php
function primenumber($MyNum) {
    $flag = 1;
    for($i = 2; $i < ($MyNum/2+1); $i++) {
        if($MyNum % $i == 0){
            $flag--;
            break;
        }
    }
}
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



```
if ($flag == 1){
    echo $MyNum." ";
    return $flag;
}
return $flag;
}

$count=0;
$x = $_POST["num1"];
$y = $_POST["num2"];

echo "List of Prime numbers between ".$x." and ".$y." are: <br>";
for($i = $x; $i < $y + 1; $i++) {
    $count+=primenumber($i);
}
echo "<br><br>Total Count of Prime numbers between ".$x." and ".$y." are: ".$count;
?>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



2. To demonstrate mechanism for message passing between pages

FORM1.php

```
<form method="POST" action="form2.php">
    <pre>Full Name: <input type="text" name="user_name"></pre>
    <pre>Mobile Number: <input type="number" name="user_mobile_number">    </pre>
    <input type="submit" value="Next">
</form>
```

2. FORM2.php

```
<?php
session_start();    // Initialize the session

// Store the submitted data sent via POST method, stored and Temporarily in $_POST
structure.

$_SESSION['name'] = $_POST['user_name'];
$_SESSION['mobile_number'] = $_POST['user_mobile_number'];
?>

<!-- Form for other details-->

<form method="POST" action="form3.php">

<pre>  Company/College: <input type="text" name="college_name">    </pre>
<pre>  City:            <input type="text" name="city">            </pre>
<pre>  State:           <input type="text" name="state">            </pre>
<pre>  Email Address:  <input type="text" name="user_email_address"></pre>
<pre>  You're a:
<input type="radio" name="profession" value="Student">Student
<input type="radio" name="profession" value="Working Professional"> Working Professional
</pre><br>
<pre>  <input type="checkbox" name="terms_and_conditions"> Terms and Conditions </pre>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



 <input type="submit" value="SUBMIT">

</form>



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



2. FORM3.php

```
<?php
```

```
    session_start();    //Initializing the session
```

```
    $name=$_SESSION['name'];
```

```
    $c_no=$_SESSION['mobile_number'];
```

```
    $College=$_POST['college_name'];
```

```
    $city=$_POST['city'];
```

```
    $state=$_POST['state'];
```

```
    $e_addr=$_POST['user_email_address'];
```

```
    $profession=$_POST['profession'];
```

```
    $tc=$_POST['terms_and_conditions'];
```

```
    echo '<h2>Given details for registration is as below: </h2><br><br><br>(Accessed using  
    _SESSION global Variable)<br>';
```

```
    echo 'NAME: '.$name.'<br>';
```

```
    echo 'Contact number: '.$c_no.'<br>';
```

```
    echo '<br><br><br>(accessed using _POST global Variable)<br>';
```

```
    echo 'E-mail address: '.$e_addr.'<br>';
```

```
    echo 'College Name: '.$College.'<br>';
```

```
    echo 'City: '.$city.'<br>';
```

```
    echo 'State: '.$state.'<br>';
```

```
    echo 'Profession: '.$profession.'<br>';
```

```
    echo 'Course: '.$course.'<br>';
```

```
    echo 'Terms and Conditions: '.$tc.'<br>';
```

```
    echo '<br><br><strong>Thank you for the data</strong>';
```

```
?>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



3. To implement Simple Calculator

```
<!DOCTYPE html>
```

```
<head> <title>Simple Calculator Program in PHP - Tutorials Class</title></head>
```

```
<?php
```

```
$first_num = $_POST['first_num'];
```

```
$second_num = $_POST['second_num'];
```

```
$operator = $_POST['operator'];
```

```
$result = "";
```

```
if (is_numeric($first_num) && is_numeric($second_num)) {
```

```
    switch ($operator) {
```

```
        case "Add":      $result = $first_num + $second_num;      break;
```

```
        case "Subtract":  $result = $first_num - $second_num;      break;
```

```
        case "Multiply":  $result = $first_num * $second_num;      break;
```

```
        case "Divide":    $result = $first_num / $second_num;
```

```
    }
```

```
}
```

```
?>
```

```
<body>
```

```
    <div id="page-wrap">
```

```
        <h1>PHP - Simple Calculator Program</h1>
```





B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com





B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



4. To demonstrate String Operations

```
<?php  
  
echo strlen("Hello world!")."<br>";  
  
echo str_word_count("Hello world!")."<br>";  
  
echo strrev("Hello world!")."<br>";  
  
echo strpos("Hello world!", "world")."<br>";  
  
echo str_replace("world", "Dolly", "Hello world!")."<br>";  
  
echo substr("Hello world",6)."<br>";  
  
?>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



5. To demonstrate Array Operations

```
<?php
```

```
$a=array("Cow","Goat","Dog");
```

```
$a2=array("Rat","squirrel");
```

```
echo "ARRAY STATUS (A1): ";          print_r($a);
```

```
echo "<br><br>ARRAY STATUS (A2): ";    print_r($a2);
```

```
array_pop($a);
```

```
echo "<br><br><br> AFTER ARRAY POP (A1): ";    print_r($a);
```

```
array_push($a,"Cat","Bat");
```

```
echo "<br><br> AFTER ARRAY PUSH (A2): ";    print_r($a);
```

```
echo "<br><br> AFTER ARRAY MERGE (A1 and A2): ";    print_r(array_merge($a,$a2));
```

```
echo "<br><br> AFTER ARRAY REVERSE (A1): ";    print_r(array_reverse($a));
```

```
echo "<br><br> AFTER ARRAY SHIFT (A1): ";
```

```
array_shift($a);          print_r ($a);
```

```
echo "<br><br> AFTER ARRAY UNSHIFT (A1): ";
```

```
array_unshift($a,"Buffalo");    print_r($a);
```

```
?>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



6. To display appropriate Greeting message to user based on time.

```
<?php
```

```
$dat = new DateTime('now', new DateTimeZone('Asia/Kolkata'));
```

```
$date=$dat->format('H');
```

```
if($date < 12)
```

```
    echo "Good morning to everyone";
```

```
else if($date < 17)
```

```
    echo "Good afternoon to everyone";
```

```
else if($date<20)
```

```
    echo "Good evening to everyone";
```

```
else
```

```
    echo "Good night to everyone";
```

```
?>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



7. Compute GCD and LCM of given two numbers

<?php

```
function getGCF($a, $b) {  
  
    if ($b == 0) {  
  
        return $a;  
  
    }  
  
    else {  
  
        return getGCF($b, $a % $b);  
  
    }  
  
}  
  
function getLCM($a, $b) {  
  
    return ($a * $b) / getGCF($a, $b);  
  
}
```

?>

<html> <head>

<title>Project: GCF and LCM</title>

</head>

<body> <h2>Project : GCF and LCM</h2>

<?php

```
if (!isset($_POST['submit'])) {
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



?>

```
<form method="post" action="">
```

Enter two integers:


```
<input type="text" name="num_1" size="3" />
```

```
<p> <input type="text" name="num_2" size="3" /> <p>
```

```
<input type="submit" name="submit" value="Submit" />
```

```
</form>
```

```
<?php
```

```
} else {
```

```
$num1 = (int)$_POST['num_1'];
```

```
$num2 = (int)$_POST['num_2'];
```

```
echo "You entered: $num1, $num2";
```

```
echo "<br />";
```

```
echo "The GCF of ($num1, $num2) is: " . getGCF($num1, $num2);
```

```
echo "<br />";
```

```
echo "The LCM of ($num1, $num2) is: " . getLCM($num1, $num2);
```

```
}
```

```
?>
```

```
</body>
```

```
</html>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com





B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



8. Demonstration of Constructor and Destructor

```
<?php
```

```
class Fruit {
```

```
    public $name;
```

```
    public $color;
```

```
    function __construct($name, $color) {
```

```
        echo "INSIDE CONSTRUCTOR (before): The fruit is {$this->name} and the color is {$this->color}.<br>";
```

```
        $this->name = $name;
```

```
        $this->color = $color;
```

```
        echo "INSIDE CONSTRUCTOR (after): The fruit is {$this->name} and the color is {$this->color}.<br>"; }
    }
```

```
    function __destruct() {
```

```
        echo "INSIDE DESTRUCTOR: The fruit is {$this->name} and the color is {$this->color}.<br>";
```

```
    }
```

```
}
```

```
$apple = new Fruit("Apple", "red");
```

```
echo "This program is still active <br>";
```

```
echo "This program is about to die..<br>";
```

```
echo "Invokes destructor implicitly<br>";
```

```
?>
```



B. L. D. E. ASSOCIATION'S
S. B. ARTS AND K. C. P. SCIENCE COLLEGE

SHRI B. M. PATIL ROAD (Solapur Road), Vijayapur-586103

Accredited with CGPA of 2.99 at 'B++' Grade in 4th Cycle by NAAC

Phone: (08352) 262770 Extn. 2223, 2224

Web: www.bldeasbkcp.ac.in

E-mail: bldeasbkcp@gmail.com



9. File Content Transfer

<?php

```
$file = fopen('Source.txt', 'rb');
```

```
if ($file!= false) echo "Source file opened in read mode (binary)<br>";
```

```
$newfile = fopen('destination.txt', 'wb');
```

```
if ($file!= false) echo "Destination file opened in Write mode (binary)<br>";
```

```
echo "Writing File Contents<br>";
```

```
while(($line = fgets($file)) != false) {
```

```
    fputs($newfile, $line);
```

```
}
```

```
echo "Completed Successfully ";
```

```
fclose($newfile);
```

```
fclose($file);
```

```
?>
```

B. L. D. E. Association's
S. B. Arts & K. C. P. Science College,
Vijayapur



B.C.A. Programme
III semester
C# & .NET FRAMEWORK
Lab manual NEP
(A.Y. 2023-24)

Lab Program No:01

Write a C# program to show the machine details like machine name, OperatingSystem, Version, Physical Memory and calculate the time since the Last Boot Up.(Hint: Use System.Environment Class)

/* Give project name as Lab1 */

using System;

namespace Lab1

{

class Program

{

static void Main(string[] args)

{

int tickCount = 0;

tickCount = Environment.TickCount;

Console.WriteLine("The time since the Last Boot Up: " + tickCount);

Console.WriteLine("OS Version is= " + Environment.OSVersion.Version.ToString() + "\n");

Console.WriteLine("Machinename is= " + Environment.MachineName);

Console.WriteLine("OS Platoform: " + Environment.OSVersion.Platform.ToString());

foreach (String s3 in Environment.GetLogicalDrives())

 Console.WriteLine("Drive: " + s3 + "\n");

 Console.ReadLine();

}

}

}

#output

The time since the Last Boot Up: 1129433343

OS Version is= 6.2.9200.0

Machinename is= LAPTOP-D25H1M72OS

Platoform: Win32NT

Drive: C:\ Drive: D:\

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program No:02 Write a program in C# Sharp to count a total number of alphabets, and special characters in a string

```
/* Give project name as Lab2*/  
Using System: namespace Lab2  
{  
class Program  
{  
static void Main(string[] args)  
{  
    string str;  
    int alp, digit, splch, i, l; alp = digit = splch = i = 0;  
    Console.WriteLine("Enter a string : ");  
    str = Console.ReadLine();  
    l = str.Length;  
  
    /* Checks each character of string*/  
    while (i < l)  
    {  
        if ((str[i] >= 'a' && str[i] <= 'z') || (str[i] >= 'A' && str[i] <= 'Z'))  
        {  
            alp++;  
        }  
        else if (str[i] >= '0' && str[i] <= '9')  
        {  
            digit++;  
        }  
        else  
        {  
            splch++;  
        }  
        i++;  
    }  
    Console.WriteLine("Number of Alphabets in the string is : {0}\n", alp);  
    Console.WriteLine("Number of Digits in the string is : {0}\n", digit);  
    Console.WriteLine("Number of Special characters in the string is : {0}\n\n", splch);  
    Console.ReadLine();  
}
```

**BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME**

#Output

Count total number of alphabets, digits and special characters :

Enter a string : i am 30 year old and my roll number is U22S09876.

Number of Alphabets in the string is : 29Number of Digits in the string is : 9

Number of Special characters in the string is : 16

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program: 03: Write a C# program to create a function to calculate the sum of individual digits of a given number.

* Give project name as Lab3*

using System;

namespace Lab3

{
class Program

{
public static int SumCal(int number)

{
string n1 = Convert.ToString(number);

int sum = 0;

for (int i = 0; i < n1.Length; i++)

sum += Convert.ToInt32(n1.Substring(i, 1));

return sum;

}

public static void Main()

{
int num;

Console.Write("Enter a number: ");

num = Convert.ToInt32(Console.ReadLine());

Console.WriteLine("The sum of the digits of the number {0} is : {1}", num,

SumCal(num));

Console.ReadLine();
}
}

#output

Enter a number 756644

The sum of the digits of the number 756644 is : 32

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program No:04 Draw a square with sides 100 pixels in length. Then inscribe a circle of radius 50 inside the square. Position the square and the inscribed circle in the middle of the screen.

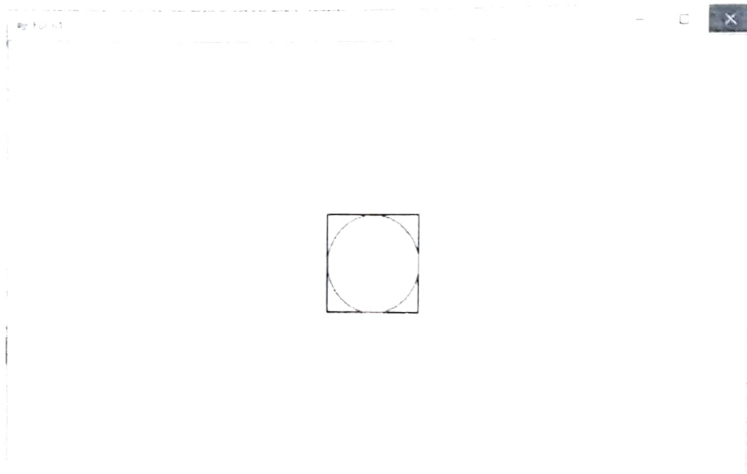
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq; using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace Pgm04
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Paint(object sender, PaintEventArgs e)
        {
            Graphics g = panel1.CreateGraphics();
            Pen pblack = new Pen(Color.Black);
            int x = (this.ClientSize.Width / 2) - 50;
            int y = (this.ClientSize.Height / 2) - 50;
            int h = 100;
            int w = 100; g.DrawRectangle(pblack.x,y,h,w);
            Pen pred = new Pen(Color.Red); g.DrawEllipse(pred, x, y, h, w);
        }
    }
}
```

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

#output



BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program:05 Write a program to implement multilevel inheritance
using System;

```
namespace Lab5
{
    public class Brand
    {
        public string Name; public void GetName()
        {
            Console.WriteLine("Mobile Name:{0}", Name);
        }
    }
    public class Model : Brand
    {
        public string Mod; public void GetModel()
        {
            Console.WriteLine("Mobile Model={0}", Mod);
        }
    }
    public class Price : Model
    {
        public double Rate; public double Disc; public void GetPrice()
        {
            Rate = Rate - Disc; Console.WriteLine("Total Amount={0}", Rate);
        }
    }
    class Program
    {
        static void Main(string[] args)
        {
            Price p = new Price(); Console.WriteLine("Enter Mobile details");
            Console.WriteLine("Enter Brand Name:");
            p.Name = Console.ReadLine(); Console.WriteLine("Enter Model:");
            p.Mod = Console.ReadLine(); Console.WriteLine("Enter Mobile Price");
            p.Rate = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine("Enter Discount amount");
            p.Disc = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine(".....");
            Console.WriteLine("Mobile details are:");
            p.GetName();
            p.GetModel();
            p.GetPrice();
            Console.ReadLine();
        }
    }
}
```

**BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME**

#output

Enter Mobile detailsEnter Brand Name: Samsung

Enter Model:

Galaxy Note

Enter Mobile Price28000

Enter Discount amount400

.....

**Mobile details are: Mobile Name:Samsung Mobile Model=Galaxy NoteTotal
Amount=27600**

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program No:06 program to demonstrate system exception
using System; namespace SysExc

```
{
class Program
{
static void Main(string[] args)
{
int Number1, Number2, Result;try
{
Console.WriteLine("Enter First Number");
Number1 = int.Parse(Console.ReadLine());
Console.WriteLine("Enter Second Number");
Number2 = int.Parse(Console.ReadLine());
Result = Number1 / Number2;
Console.WriteLine("Result:", + Result);
}

catch (DivideByZeroException)
{
Console.WriteLine("Second Number Should Not Be Zero");
}
catch (FormatException fe)
{
Console.WriteLine("Enter Only Integer Numbers");
}
catch (Exception)
{
Console.WriteLine("Generic Catch Block...");
}
Console.ReadKey();
}
}
```

#OUTPUT:1

Enter First Number100
Enter Second Number50
Result: 2

#Output :2

Enter First Number100
Enter Second Number0
Second Number Should Not Be Zero

#OUTPUT:3

Enter First Number100
Enter Second Numberabcd
Enter Only Integer Numbers

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program No:07 Write a object oriented program to demonstrate banktransaction.
Include methods for amount deposit, withdraw and display
/* Give project name as Lab7*/

using System;

namespace Lab7

```
{
public class BankDetails
{
int amount = 1000, dep_amt, draw_amt;

public void CheckBal()
{
Console.WriteLine("\n YOUR BALANCE IN Rs : {0} ", amount);
}

public void Withdraw()
{
Console.WriteLine("\n ENTER THE AMOUNT TO WITHDRAW: ");
draw_amt = int.Parse(Console.ReadLine());
if (draw_amt % 100 != 0)
{
Console.WriteLine("\n PLEASE ENTER THE AMOUNT IN MULTIPLES OF 100");
}
else if (draw_amt > (amount - 500))
{
Console.WriteLine("\n INSUFFICIENT BALANCE");
}
else
{
amount = amount - draw_amt; Console.WriteLine("\n\n PLEASE COLLECT CASH");
Console.WriteLine("\n YOUR CURRENT BALANCE IS {0}", amount);
}

public void Deposit()
{
Console.WriteLine("\n ENTER THE AMOUNT TO DEPOSIT");
dep_amt = int.Parse(Console.ReadLine());
amount = amount + dep_amt; Console.WriteLine("YOUR BALANCE IS {0}", amount);
}

class Program
{
static void Main(string[] args)
{
int choice, pin = 0; Console.WriteLine("Enter Your Pin Number ");
pin = int.Parse(Console.ReadLine());
BankDetails b = new BankDetails();
}
```

**BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME**

```
while (true)
{
    Console.WriteLine("*****Welcome to ATM Service*****\n");
    Console.WriteLine("1. Check Balance\n");
```

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

```
Console.WriteLine("2. Withdraw Cash\n");
Console.WriteLine("3. Deposit Cash\n");
Console.WriteLine("4. Quit\n");
Console.WriteLine("*****\n");
Console.WriteLine("Enter your choice: ");
choice = int.Parse(Console.ReadLine());
switch (choice)
{
    case 1:
        b.CheckBal();break;
    case 2:
        b.Withdraw();break;
    case 3:
        b.Deposit();break;
    case 4:
        Console.WriteLine("\n THANK YOU FOR USING ATM");
        break;
}
Console.WriteLine("\n THANKS FOR USING OUR ATM SERVICE");
}
```

```
}
}
}
```

#Output

Enter Your Pin Number2345

*******Welcome to ATM Service*******

- 1. Check Balance**
- 2. Withdraw Cash**
- 3. Deposit Cash**
- 4. Quit**

******* Enter your choice:**

1

YOUR BALANCE IN Rs : 1000

THANKS FOR USING OUT ATM SERVICE

*******Welcome to ATM Service*******

- 1. Check Balance**
- 2. Withdraw Cash**

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

3. Deposit Cash

4. Quit

..... Enter your choice:

**BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME**

2

ENTER THE AMOUNT TO WITHDRAW:

700

INSUFFICIENT BALANCE

THANKS FOR USING OUT ATM SERVICE

*******Welcome to ATM Service*******

- 1. Check Balance**
- 2. Withdraw Cash**
- 3. Deposit Cash**
- 4. Quit**

******* Enter your choice:**

3

ENTER THE AMOUNT TO DEPOSIT2000

YOUR BALANCE IS 3000

THANKS FOR USING OUT ATM SERVICE

*******Welcome to ATM Service*******

- 1. Check Balance**
- 2. Withdraw Cash**
- 3. Deposit Cash**
- 4. Quit**

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program No:08 Demonstrate operator overloading two complex numbers

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace ass8
{
    public class Complex
    {
        public int real;
        public int imag;
        public Complex(int real, int imag)
        {
            this.real = real;
            this.imag = imag;
        }
    }

    // Syntax of Operator Overloading
    public static Complex operator +(Complex n1, Complex n2)
    {
        return new Complex(n1.real + n2.real, n1.imag + n2.imag);
    }

    // Override the ToString method to display an complex number in the suitable format:
    public override string ToString()
    {
        return (String.Format("{0} + {1}i", real, imag));
    }
}

static void Main(string[] args)
{
    Complex cnum1 = new Complex(4, 5);
    Complex cnum2 = new Complex(5, 6);
    // Add two Complex objects (num1 and num2) through the
    Complex add = cnum1 + cnum2;
    // Print the numbers
    Console.WriteLine("First complex number: {0}", cnum1);
    Console.WriteLine("Second complex number: {0}", cnum2);
    Console.WriteLine("The sum of the two numbers: {0}", add);
    // Halt the output screen
    Console.Read();
}
```

**BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME**

#output

First complex number: $4 + 5i$

Second complex number: $5 + 6i$

The sum of the two numbers: $9 + 11i$

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

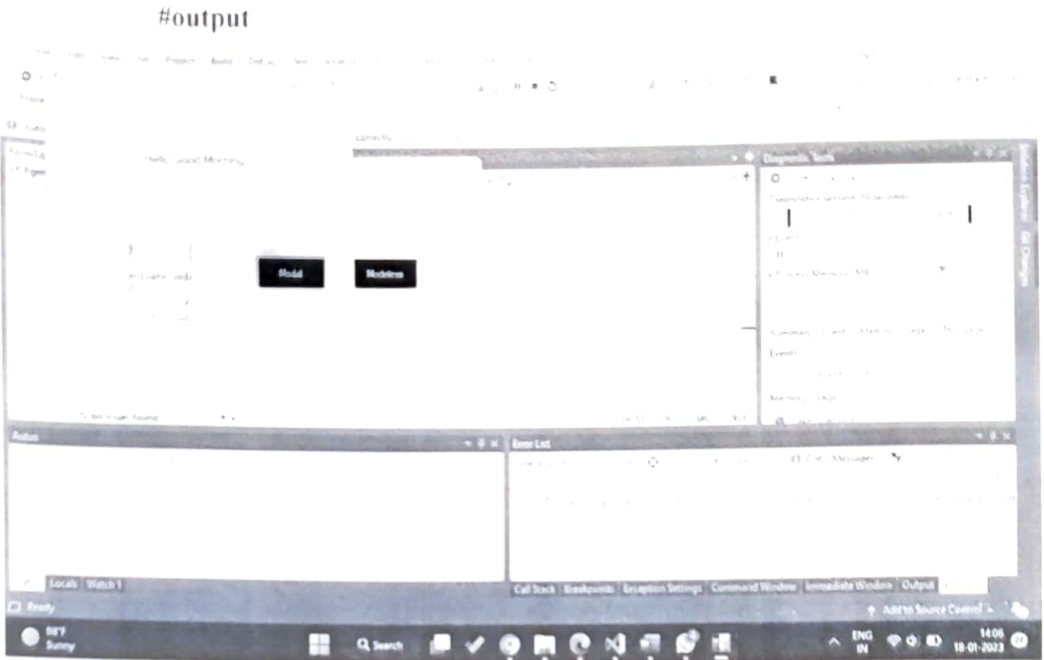
Lab Program No:09 Demonstrate Dialog box (Modal and Modeless)

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
namespace Pgm9
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            Form2 f = new Form2();
            f.ShowDialog();
        }

        private void button2_Click(object sender, EventArgs e)
        {
            Form2 f = new Form2();
            f.Show();
        }
    }
}
```

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME



BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, VIJAYAPUR
BCA PROGRAMME

Lab Program No:10 Write a program in C# Sharp to create Menu and menu items.

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace WindowsFormsApplication2
{
    public partial class Form1 : Form
    {
        private MainMenu mainMenu;

        public Form1()
        {
            InitializeComponent();
            mainMenu = new MainMenu();
            MenuItem File = mainMenu.MenuItems.Add("&File");
            File.MenuItems.Add(new MenuItem("&New"));
            File.MenuItems.Add(new MenuItem("&Open"));
            File.MenuItems.Add(new MenuItem("&Exit"));
            this.Menu = mainMenu;
            MenuItem About = mainMenu.MenuItems.Add("&About");
            About.MenuItems.Add(new MenuItem("&About"));
            this.Menu = mainMenu;
            mainMenu.GetForm().BackColor = Color.Indigo;
        }

        private void Form1_Load(object sender, EventArgs e)
        {
        }
    }
}
```


B. L. D. E. Association's
S. B. Arts & K. C. P. Science College,
Vijayapur



B.C.A. Programme

II semester

DATA STRUCTURE USING

'C' Lab manual NEP

(A.Y. 2023-24)

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

SECTION A

1: Program to find gcd using recursive function

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

```
int gcd(int m, int n)
{
    if (n == 0)
    {
        return m;
    }
    if (m < n)
    {
        return gcd(n, m);
    }
    return gcd(n, m % n);
}
```

```
int main()
{
    int m, n, res;
    printf("Enter the values for 'm' and 'n': ");
    scanf("%d %d", &m, &n);
    res = gcd(m, n);
    printf("GCD of %d and %d = %d\n", m, n, res);
    return 0;
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

2: Program to generate Binomial coefficient using recursion

```
#include <stdio.h>

int bc(int n, int k)
{
    if (k == 0 || k == n)
        return 1;
    if (k > n)
        return 0;
    return bc(n - 1, k - 1) + bc(n - 1, k);
}

int main()
{
    int a, b, res;

    printf("Enter the values for 'a' and 'b': ");
    scanf("%d %d", &a, &b);

    res = bc(a, b);

    printf("The result = %d\n", res);

    return 0;
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

3: Program to generate n fibonacci numbers using recursive function

```
#include <stdio.h>

int fib(int n)
{
    if (n == 0)
        return 0;
    if (n == 1)
        return 1;
    return fib(n - 1) + fib(n - 2);
}

int main()
{
    int i, n;
    printf("Enter a value: ");
    scanf("%d", &n);
    printf("Fibonacci numbers are: ");
    for (i = 0; i < n; i++)
    {
        printf("%d\n", fib(i));
    }
    return 0;
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

4: Program to implement tower of honoi using recursive.

```
#include<stdio.h>
int tower(int n,char s,char t,char d)
{
    if(n==1)
    {
        printf("move disc from %d from %d to %c",n,s,d);
        return 0;
    }
    tower(n-1,s,d,t);
    printf("move disc %d from %c to %c\n",n,s,d);
    tower(n-1,t,s,d);
}
int main()
{
    int n;
    printf("Enter the number of disc");
    scanf("%d",&n);
    tower(n,'A','B','C');
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

5: Program to implement dynamic array ,find smallest and largest element of the array.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int n;
    printf("Enter the size of the array: ");
    scanf("%d", &n);
    if (n <= 0)
    {
        printf("Invalid array size.\n");
        return 1;
    }
    int *arr = (int *)calloc(n, sizeof(int));

    if (arr == NULL) {
        printf("Memory allocation failed.\n");
        return 1;
    }
    printf("Enter %d elements:\n", n);
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &arr[i]);
    }
    int sma = arr[0];
    int lar = arr[0];

    for (int i = 1; i < n; i++) {
        if (arr[i] < sma) {
            sma = arr[i];
        }
        if (arr[i] > lar) {
            lar = arr[i];
        }
    }
    printf("Smallest element: %d\n", sma);
    printf("Largest element: %d\n", lar);
    free(arr);
    return 0;
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

6: Program to read the names of cities and arrange them alphabetically,

```
#include<stdio.h>
#include<string.h>
int main()
{
    int i,j,n;
    char str[20][20],s[20];
    printf("Enter number of names :");
    scanf("%d",&n);
    printf("Enter names in any order:");
    for(i=0;i<n;i++)
    {
        scanf("%s",str[i]);
    }
    for(i=0;i<n;i++)
    {
        for(j=i+1;j<n;j++)
        {
            if(strcmp(str[i],str[j])>0)
            {
                strcpy(s,str[i]);
                strcpy(str[i],str[j]);
                strcpy(str[j],s);
            }
        }
    }
    printf(" The sorted order of names are:");
    for(i=0;i<n;i++)
    {
        printf("%s\n",str[i]);
    }
}
```

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR

7:Program to sort the given list using selection sort technique.

```
#include<stdio.h>
int main()
{
    int i,j,Temp,a[100],n,pos;
    printf("Enter n value \n");
    scanf("%d",&n);
    printf("Enter the numbers\n");
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    for(i=0;i<n-1;i++)
    {
        pos=i;
        for(j=i+1;j<n;j++)
        {
            if(a[j]<a[pos])
                pos=j;
        }
        temp=a[pos];
        a[pos]=a[i];
        a[i]=Temp;
    }
    printf("The sorted numbers are\n");
    for(i=0;i<n;i++)
    {
        printf("%d\n",a[i]);
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

8: Program to sort the given list using bubble sort technique.

```
#include<stdio.h>
int main()
{
    int a[10], n,i, j, temp;
    printf("enter number of items\n");
    scanf("%d",&n);
    printf("enter %d numbers",n);
    for (i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    for(i=0; i<n-1; i++)
    {
        for(j=0; j<n-i-1; j++)
        {
            if(a[j]>a[j+1]);
            {
                temp=a[j];
                a[j]=a[j+1];
                a[j+1]=temp;
            }
        }
    }
    printf("sorted items\n");

    for(i=0; i<n-1; i++)
    {
        printf("%d",a[i]);
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

9:Program to sort the given list using insertion sort technique.

```
#include<stdio.h>
int main()
{
    int n,i,j,temp,a[20];
    printf("Enter the n value \n");
    scanf("%d",&n);
    printf("Enter the numbers \n");
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    for(i=1;i<n;i++)
    {
        temp=a[i];
        j=i-1;
        while (j>=0&& a[j]>temp)
        {
            a[j+1]=a[j];
            j--;
        }
        a[j+1]=temp;
    }
    printf("The sorted numbers are\n");
    for(i=0;i<n;i++)
    {
        printf("%d \n",a[i]);
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

PART B

1: Program to sort the given list using quick sort technique.

```
#include <stdio.h>
int partition(int a[], int low, int high)
{
    int i, j, temp, key;
    key = a[low], i = low + 1, j = high;
    while (1)
    {
        while (i <= high && key >= a[i])
            i++;
        while (key < a[j])
            j--;
        if (i < j) {
            temp = a[i];
            a[i] = a[j];
            a[j] = temp;
        } else {
            temp = a[low];
            a[low] = a[j];
            a[j] = temp;
            return j;
        }
    }
}
```

```
void quicksort(int a[], int low, int high)
{
    int j;
    if (low < high) {
        j = partition(a, low, high);
        quicksort(a, low, j - 1);
        quicksort(a, j + 1, high);
    }
}
```

```
int main() {
    int i, n, a[100];
    printf("Enter the value for n:\n");
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
scanf("%d", &n);
printf("Enter the numbers to be sorted:\n");
for (i = 0; i < n; i++) {
    scanf("%d", &a[i]);
}
quicksort(a, 0, n - 1);
printf("The sorted array is:\n");
for (i = 0; i < n; i++) {
    printf("%d ", a[i]);
}
printf("\n");

return 0;
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

2: Program to sort the given list using merge sort technique.

```
#include <stdio.h>

// Function to merge two subarrays of arr[]
void merge(int arr[], int left, int mid, int right) {
    int i, j, k;
    int n1 = mid - left + 1;
    int n2 = right - mid;

    // Create temporary arrays
    int L[n1], R[n2];

    // Copy data to temporary arrays L[] and R[]
    for (i = 0; i < n1; i++)
        L[i] = arr[left + i];
    for (j = 0; j < n2; j++)
        R[j] = arr[mid + 1 + j];

    // Merge the temporary arrays back into arr[l..r]
    i = 0;
    j = 0;
    k = left;
    while (i < n1 && j < n2) {
        if (L[i] <= R[j]) {
            arr[k] = L[i];
            i++;
        } else {
            arr[k] = R[j];
            j++;
        }
        k++;
    }

    // Copy the remaining elements of L[], if any
    while (i < n1) {
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
arr[k] = L[i];
i++;
k++;
}

// Copy the remaining elements of R[], if any
while (j < n2) {
    arr[k] = R[j];
    j++;
    k++;
}

// Main function to perform merge sort
void mergeSort(int arr[], int left, int right) {
    if (left < right) {
        int mid = left + (right - left) / 2;

        // Sort first and second halves
        mergeSort(arr, left, mid);
        mergeSort(arr, mid + 1, right);

        // Merge the sorted halves
        merge(arr, left, mid, right);
    }
}

int main() {
    int n;
    printf("Enter the number of elements: ");
    scanf("%d", &n);

    int arr[n];
    printf("Enter the elements:\n");
    for (int i = 0; i < n; i++)
        scanf("%d", &arr[i]);

    mergeSort(arr, 0, n - 1);

    printf("Sorted array:\n");
    for (int i = 0; i < n; i++)
        printf("%d ", arr[i]);
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
printf("\n");  
  
return 0;  
}
```

3 :Program to search an element using linear search technique.

```
#include <stdio.h>  
// Linear search function  
int linearSearch(int arr[], int size, int target)  
{  
    for (int i = 0; i < size; i++)  
    {  
        if (arr[i] == target)  
        {  
            return i; // Return the index of the found element  
        }  
    }  
    return -1; // Return -1 if the element is not found  
}  
  
int main() {  
    int n;  
    printf("Enter the number of elements: ");  
    scanf("%d", &n);  
  
    int arr[n];  
    printf("Enter the elements:\n");  
    for (int i = 0; i < n; i++)  
        scanf("%d", &arr[i]);  
  
    int target;  
    printf("Enter the element to search for: ");  
    scanf("%d", &target);  
  
    int index = linearSearch(arr, n, target);  
  
    if (index != -1) {  
        printf("Element %d found at index %d\n", target, index);  
    } else {  
        printf("Element %d not found in the array\n", target);  
    }  
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
}  
  
return 0;  
}
```

4: Program to search an element using binary search technique.

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

```
int binary(int key, int a[], int n) {  
    int low, high, mid;  
    low = 0;  
    high = n - 1;  
    while (low <= high) {  
        mid = (low + high) / 2;  
        if (key == a[mid]) {  
            return mid;  
        }  
        if (key < a[mid]) {  
            high = mid - 1;  
        }  
        if (key > a[mid]) {  
            low = mid + 1;  
        }  
    }  
    return -1;  
}
```

```
int main() {  
    int n, a[100], key, pos, i;  
    printf("Enter n values\n");  
    scanf("%d", &n);  
    printf("Enter the elements of the array\n");  
    for (i = 0; i < n; i++) {  
        scanf("%d", &a[i]);  
    }  
    printf("Enter the number to be searched\n");  
    scanf("%d", &key);  
    pos = binary(key, a, n);  
    if (pos == -1) {  
        printf("Item not found\n");  
    }  
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME, VIJAYAPUR**

```
} else {  
    printf("Item found at position %d\n", pos);  
}  
return 0; // Corrected return value  
}
```

5. Program to implement stack.

```
#include <stdio.h>  
#define SIZE 20
```

```
int top, s[SIZE];
```

```
void push(int item) {  
    if (top == SIZE - 1) {  
        printf("Stack is full\n");  
        return;  
    }  
    top++;  
    s[top] = item;  
}
```

```
int pop() {  
    if (top == -1) {  
        printf("Stack is empty\n");  
        return -1;  
    }  
    int d = s[top];  
    top--;  
    return d;  
}
```

```
void display() {  
    if (top == -1) {  
        printf("Stack is empty\n");  
        return;  
    }  
    printf("The contents of the stack:\n");  
    for (int i = 0; i <= top; i++) {  
        printf("%d\n", s[i]);  
    }  
}
```

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME, VIJAYAPUR

```
int main() {
    int item, d, ch;
    top = -1;

    for (;;) {
        printf("1: Push n");
        printf("2: Pop n");
        printf("3: Display n");
        printf("4: Exit n");
        printf("Enter your choice: ");
        scanf("%d", &ch);

        switch (ch) {
            case 1:
                printf("Enter the item to be inserted: ");
                scanf("%d", &item);
                push(item);
                break;

            case 2:
                d = pop();
                if (d != -1) {
                    printf("Item deleted = %d n", d);
                }
                break;

            case 3:
                display();
                break;

            case 4:
                printf("Exiting... n");
                return 0;

            default:
                printf("Invalid choice n");
                return 0;
        }
    }

    return 0;
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

6: Program to convert an infix expression to postfix.

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#define MAX_SIZE 100

/* Structure for stack */
struct Stack {
    char arr[MAX_SIZE];
    int top;
};

/* Function to initialize a stack */
void initialize(struct Stack* stack) {
    stack->top = -1;
}

/* Function to check if the stack is empty */
int isEmpty(struct Stack* stack) {
    return stack->top == -1;
}

/* Function to push an element onto the stack */
void push(struct Stack* stack, char item) {
    if (stack->top == MAX_SIZE - 1) {
        printf("Stack overflow n");
        exit(1);
    }
    stack->arr[*(stack->top)] = item;
}

/* Function to pop an element from the stack */
char pop(struct Stack* stack) {
    if (isEmpty(stack)) {
        printf("Stack underflow n");
        exit(1);
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
}
return stack->arr[(stack->top)--];
}

// Function to return the precedence of an operator
int getPrecedence(char operator) {
    if (operator == '^')
        return 3;
    else if (operator == '*' || operator == '/')
        return 2;
    else if (operator == '+' || operator == '-')
        return 1;
    else
        return -1;
}

// Function to convert infix expression to postfix
void infixToPostfix(char infix[], char postfix[]) {
    struct Stack stack;
    initialize(&stack);
    int i, j = 0;

    for (i = 0; infix[i] != '\0'; i++) {
        char c = infix[i];

        if (c >= 'a' && c <= 'z') {
            postfix[j++] = c;
        } else if (c == '(') {
            push(&stack, c);
        } else if (c == ')') {
            while (!isEmpty(&stack) && stack.arr[stack.top] != '(') {
                postfix[j++] = pop(&stack);
            }
            if (!isEmpty(&stack) && stack.arr[stack.top] == '(') {
                pop(&stack);
            }
        } else {
            while (!isEmpty(&stack) && getPrecedence(c) <=
getPrecedence(stack.arr[stack.top])) {
                postfix[j++] = pop(&stack);
            }
            push(&stack, c);
        }
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
}  
  
while (!isEmpty(&stack)) {  
    postfix[j++] = pop(&stack);  
}  
  
postfix[j] = '\0';  
}  
  
int main() {  
    char infix[MAX_SIZE], postfix[MAX_SIZE];  
    printf("Enter an infix expression: ");  
    scanf("%s", infix);  
  
    infixToPostfix(infix, postfix);  
  
    printf("Postfix expression: %s\n", postfix);  
  
    return 0;  
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

7:Program to implement simple queue.

```
#include<stdio.h>
#include<stdlib.h>
#define size 5
int ch, item, f, r, q[size];

void insert_rear() {
    if (r == size - 1) {
        printf("Queue overflow\n");
        return;
    }
    r = r + 1;
    q[r] = item;
}

void delete_front() {
    if (f > r) {
        printf("Queue underflow\n");
        f = 0;
        r = -1;
        return;
    }
    printf("The element deleted is %d\n", q[f]);
    f++;
}

void display() {
    int i;
    if (f > r) {
        printf("Queue is empty\n");
        return;
    }
    printf("Contents of the queue:\n");
    for (i = f; i <= r; i++) {
        printf("%d n", q[i]);
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME, VIJAYAPUR**

```
    {  
    }  
  
int main() {  
    f = 0;  
    r = 0; // Initialize r to 0  
    int d;  
  
    for (;;) {  
        printf("1. Insert 2. Delete\n");  
        printf("3. Display 4. Exit\n");  
        scanf("%d", &ch);  
  
        switch (ch) {  
            case 1:  
                printf("Enter the item to be inserted: ");  
                scanf("%d", &item);  
                insert_rear();  
                break;  
            case 2:  
                delete_front();  
                break;  
            case 3:  
                display();  
                break;  
            case 4:  
                exit(0);  
                break;  
        }  
    }  
    return 0;  
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

8: Program to implement liner linked list.

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

struct Node {
    int data;
    struct Node* next;
};

struct Node* head = NULL;

void insertAtBeginning(int value) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = head;
    head = newNode;
}

void insertAtEnd(int value) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = NULL;

    if (head == NULL) {
        head = newNode;
        return;
    }

    struct Node* current = head;
    while (current->next != NULL) {
        current = current->next;
    }
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
current->next = newNode;
}

void deleteNode(int value) {
    if (head == NULL) {
        printf("List is empty\n");
        return;
    }

    if (head->data == value) {
        struct Node* temp = head;
        head = head->next;
        free(temp);
        return;
    }

    struct Node* current = head;
    while (current->next != NULL && current->next->data != value) {
        current = current->next;
    }

    if (current->next == NULL) {
        printf("Element not found in the list\n");
        return;
    }

    struct Node* temp = current->next;
    current->next = temp->next;
    free(temp);
}

void displayList() {
    struct Node* current = head;
    while (current != NULL) {
        printf("%d -> ", current->data);
        current = current->next;
    }
    printf("NULL\n");
}

int main() {
    insertAtEnd(10);
    insertAtEnd(20);
```

BLDEA'S
SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR

```
insertAtBeginning(5);  
insertAtEnd(30);  
insertAtBeginning(2);  
  
printf("Linked List: ");  
displayList();  
  
deleteNode(20);  
deleteNode(5);  
deleteNode(40);  
  
printf("Linked List after deletions: ");  
displayList();  
  
return 0;  
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

9: Program to display in-order traversal of a binary tree.

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

struct Node {
    int data;
    struct Node* left;
    struct Node* right;
};

struct Node* createNode(int value) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->left = NULL;
    newNode->right = NULL;
    return newNode;
}

void inOrderTraversal(struct Node* root) {
    if (root == NULL) {
        return;
    }
    inOrderTraversal(root->left);
    printf("%d ", root->data);
    inOrderTraversal(root->right);
}

int main() {
    struct Node* root = createNode(1);
    root->left = createNode(2);
    root->right = createNode(3);
}
```

BLDEA'S
**SB ARTS AND KCP SCIENCE COLLEGE, BCA
PROGRAMME , VIJAYAPUR**

```
root->left->left = createNode(4);  
root->left->right = createNode(5);
```

```
printf("In-Order Traversal: ");  
inOrderTraversal(root);  
printf("\n");
```

```
return 0;
```