

For all of these programs provide a list box for output (lstData), a text box for input (txtInput), and a button to start (btnStart) in a Windows application.

1. Write a program to print the digits 1 to 100 on successive lines.

```
private void btnStart_Click(object sender, EventArgs e)
{
    int i;
    for(i=1;i<=100;i++)
        lstData.Items.Add(i);
}
```

2. Write a program to print only the even digits between 0 and 100 on successive lines.

```
private void btnStart_Click(object sender, EventArgs e)
{
    int i;
    for(i=0;i<=100;i+=2)
        lstData.Items.Add(i);
}
```

3. Write a program to print all of the digits 0 to 100 on a single line.

```
private void btnStart_Click(object sender, EventArgs e)
{
    int i;
    string s = "";
    for(i=0;i<=100;i++)
        s += i.ToString();
    lstData.Items.Add(s);
}
```

4. Write a program to input a number n and print n!

```
private void btnStart_Click(object sender, EventArgs e)
{
    int n;
    long factorial;
    int i;
    n = Convert.ToInt32(txtInput.Text);
    factorial = 1;
    for(i=1;i<=n;i++)
        factorial = factorial*i;
    lstData.Items.Add(factorial);
}
```

5. Write a program to print the nth Fibonacci number where n is input from the user.

```
private void btnStart_Click(object sender, EventArgs e)
{
    int fn, fn1, fn2;
    int i, n;
    n = Convert.ToInt32(txtInput.Text);
    fn1 = 1;
    fn2 = 0;
    fn = 1;
    for(i=1;i<n;i++)
    {
        fn = fn1 + fn2;
        fn2 = fn1;
        fn1 = fn;
    }
    lstData.Items.Add(fn);
}
```

6. Write a program to print the ASCII codes for the capital letters

```
private void btnStart_Click(object sender, EventArgs e)
{
    int i;
    char c;
    for(c='A';c<'Z';c++)
    {
        i = (int)c;
        lstData.Items.Add(c.ToString() + " - " + i.ToString());
    }
}
```

7. Write a program to evaluate the equation $y = 3x^3 + 2x^2 - 4x + 10$ for values of x starting at -1 and ending at 1 in steps of .01. Print all values of x and y.

```
private void btnStart_Click(object sender, EventArgs e)
{
    double x, y;
    string s;
    for(x=-1;x<=1;x+=.01)
    {
        y = 3*Math.Pow(x,3) + 2*Math.Pow(x, 2) - 4*x + 10;
        //s = string.Format("{0:f2} {1:f5}", x, y);
        s = string.Format("{0:##.##} {1:###.#####}", x, y);
        lstData.Items.Add(s);
    }
}
```

8. Write a program to input a value k from the user and calculate $y = \sum_{n=1}^k \frac{1}{n^2}$

```
private void btnStart_Click(object sender, EventArgs e)
{
    int n, k;
    double sum;
    sum = 0;
    k = Convert.ToInt32(txtInput.Text);
    for(n=1;n<=k;n++)
    {
        sum = sum + (1.0/(n*n));
    }
    lstData.Items.Add(sum);
}
```

9. Write a program to input a value k from the user and print the value of $y_i = \sum_{n=1}^i \frac{1}{n^2}$ for value of i ranging from 1 to k.

```
private void btnStart_Click(object sender, EventArgs e)
{
    int n, k, i;
    double sum;
    k = Convert.ToInt32(txtInput.Text);
    for(i=1;i<=k;i++)
    {
        sum = 0;
        for(n=1;n<=i;n++)
        {
            sum = sum + (1.0/(n*n));
        }
        lstData.Items.Add(sum);
    }
}
```

OR,

```
private void btnStart_Click(object sender, EventArgs e)
{
    int k, i;
    k = Convert.ToInt32(txtInput.Text);
    for (i=1; i<=k; i++)
        lstData.Items.Add(SumN(i));
}

private double SumN(int i)
{
    double sum;
    int n;
    sum = 0;
    for (n = 1; n <= i; n++)
        {sum = sum + (1.0 / (n * n));}
    return sum;
}
```