

Jurnal 12

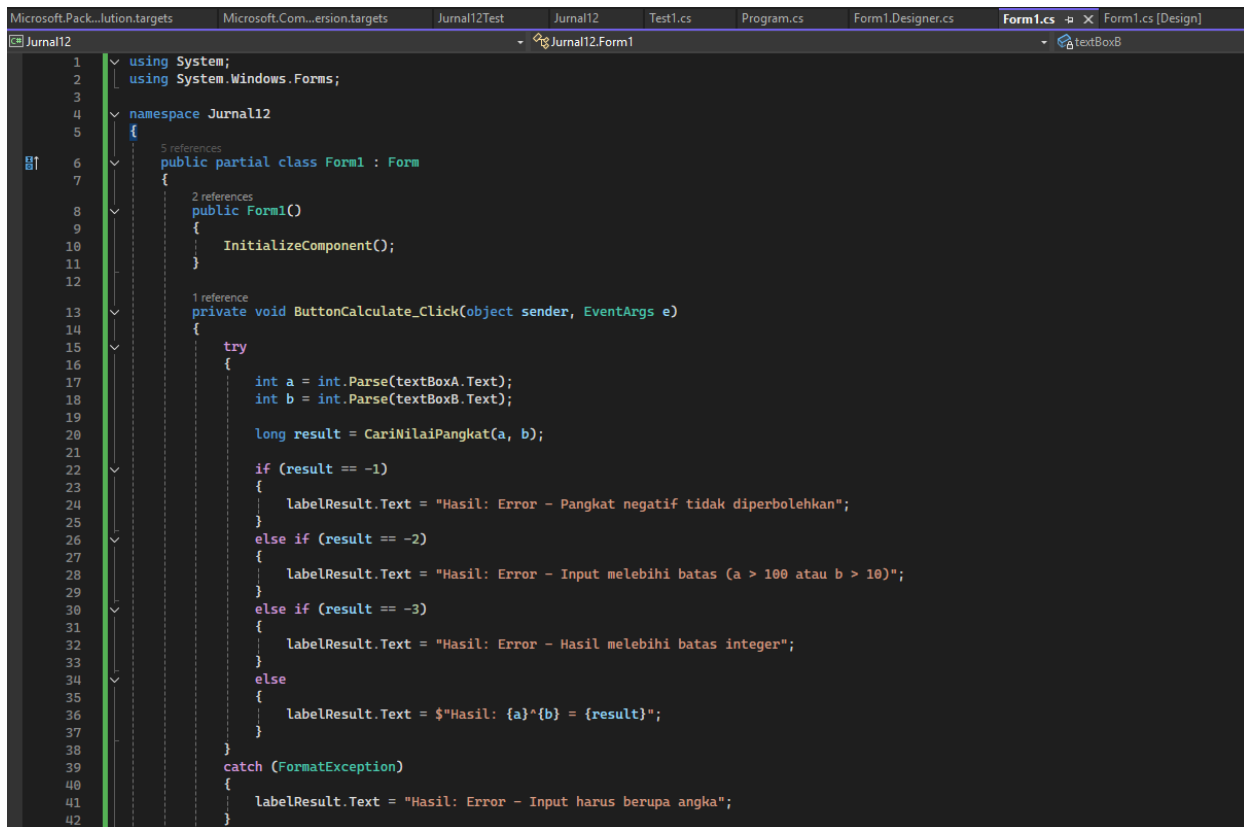
Nama: Fahmi Hasan Asagaf

Nim:2311104074

Link Repo:

[https://github.com/fahmihasanasagaf/KPL_2311104074_SE0702/tree/main/12_Performance Analysis Unit Testing dan Debugging](https://github.com/fahmihasanasagaf/KPL_2311104074_SE0702/tree/main/12_Performance%20Analysis%20Unit%20Testing%20dan%20Debugging)

Code form 1.cs



```
1 using System;
2 using System.Windows.Forms;
3
4 namespace Jurnal12
5 {
6     public partial class Form1 : Form
7     {
8         public Form1()
9         {
10             InitializeComponent();
11         }
12
13         private void ButtonCalculate_Click(object sender, EventArgs e)
14         {
15             try
16             {
17                 int a = int.Parse(textBoxA.Text);
18                 int b = int.Parse(textBoxB.Text);
19
20                 long result = CariNilaiPangkat(a, b);
21
22                 if (result == -1)
23                 {
24                     labelResult.Text = "Hasil: Error - Pangkat negatif tidak diperbolehkan";
25                 }
26                 else if (result == -2)
27                 {
28                     labelResult.Text = "Hasil: Error - Input melebihi batas (a > 100 atau b > 10)";
29                 }
30                 else if (result == -3)
31                 {
32                     labelResult.Text = "Hasil: Error - Hasil melebihi batas integer";
33                 }
34                 else
35                 {
36                     labelResult.Text = $"Hasil: {a}*{b} = {result}";
37                 }
38             }
39             catch (FormatException)
40             {
41                 labelResult.Text = "Hasil: Error - Input harus berupa angka";
42             }
43         }
44     }
45 }
```

Code Designer1.cs

```
Microsoft.Pack...lution.targets  Microsoft.Com...ersion.targets  Jurnal12Test  Jurnal12  Test1.cs  Program.cs  Form1.Designer.cs  Form1.cs  Form1.cs [Desig
Jurnal12  Jurnal12.Form1  textBoxB

1  namespace Jurnal12
2  {
3      5 references
4      partial class Form1
5      {
6          /// <summary>
7          /// Required designer variable.
8          /// </summary>
9          private System.ComponentModel.IContainer components = null;
10
11          /// <summary>
12          /// Clean up any resources being used.
13          /// </summary>
14          /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
15          0 references
16          protected override void Dispose(bool disposing)
17          {
18              if (disposing && (components != null))
19              {
20                  components.Dispose();
21              }
22              base.Dispose(disposing);
23
24          #region Windows Form Designer generated code
25
26          /// <summary>
27          /// Required method for Designer support - do not modify
28          /// the contents of this method with the code editor.
29          /// </summary>
30          1 reference
31          private void InitializeComponent()
32          {
33              this.textBoxA = new System.Windows.Forms.TextBox();
34              this.textBoxB = new System.Windows.Forms.TextBox();
35              this.buttonCalculate = new System.Windows.Forms.Button();
36              this.labelResult = new System.Windows.Forms.Label();
37              this.labelA = new System.Windows.Forms.Label();
38              this.labelB = new System.Windows.Forms.Label();
39              this.SuspendLayout();
40              //
41              // textBoxA
42              //
43              this.textBoxA.Font = new System.Drawing.Font("Microsoft Sans Serif", 10F, System.Drawing.FontStyle.Regular, System.Drawing.G
44              this.textBoxA.Location = new System.Drawing.Point(120, 50);
45              this.textBoxA.Name = "textBoxA";
```

Mstest code

```
1 using System;
2 using Microsoft.VisualStudio.TestTools.UnitTesting;
3 using Jurnal12;
4
5 namespace Jurnal12Tests
6 {
7     [TestClass]
8     public class UnitTest1
9     {
10         private Form1 form1;
11
12         [TestInitialize]
13         public void Setup()
14         {
15             form1 = new Form1();
16         }
17
18         [TestMethod]
19         public void TestCariNilaiPangkat_NormalCase()
20         {
21             // Test case normal: 2*3 = 6
22             long result = form1.CariNilaiPangkat(2, 3);
23             Assert.AreEqual(6, result);
24         }
25
26         [TestMethod]
27         public void TestCariNilaiPangkat_PowerZero()
28         {
29             // Test case b = 0: hasilnya selalu 1
30             long result1 = form1.CariNilaiPangkat(5, 0);
31             Assert.AreEqual(1, result1);
32
33             // Test case khusus: 0*0 = 1 (sesuai aturan)
34             long result2 = form1.CariNilaiPangkat(0, 0);
35             Assert.AreEqual(1, result2);
36         }
37
38         [TestMethod]
39         public void TestCariNilaiPangkat_NegativePower()
40         {
41             // Test case pangkat negatif: 2^-3 = 0.125
42             long result = form1.CariNilaiPangkat(2, -3);
43             Assert.AreEqual(125, result);
44         }
45     }
46 }
```

Ms Test Hasil

Test Explorer

Test run finished: 10 Tests (10 Passed, 0 Failed, 0 Skipped) run in 147 ms

0 Warnings 0 Errors

Test	Duration	Traits	Error Message
✓ Jurnal12Test (10)	73 ms		
✓ Jurnal12Tests (10)	73 ms		
✓ UnitTest1 (10)	73 ms		
✓ TestCariNilaiPangkat_BaseO...	72 ms		
✓ TestCariNilaiPangkat_BothLi...	< 1 ms		
✓ TestCariNilaiPangkat_Edge...	< 1 ms		
✓ TestCariNilaiPangkat_Large...	< 1 ms		
✓ TestCariNilaiPangkat_Negat...	< 1 ms		
✓ TestCariNilaiPangkat_Norm...	< 1 ms		
✓ TestCariNilaiPangkat_Overfl...	< 1 ms		
✓ TestCariNilaiPangkat_Power...	< 1 ms		
✓ TestCariNilaiPangkat_Power...	< 1 ms		
✓ TestCariNilaiPangkat_Small...	1 ms		

Run | Debug

Test Detail Summary

✓ TestCariNilaiPangkat_S...
Source: Test1.cs
Duration: 1 ms

Output Hitung Pangkat

Jurnal12 - Kalkulator Pangkat

Nilai A (basis):

Nilai B (pangkat):

Hitung Pangkat

Hasil: $2^2 = 4$

Jurnal12 - Kalkulator Pangkat

Nilai A (basis):

Nilai B (pangkat):

Hitung Pangkat

Hasil: $22^4 = 234256$

