UNIVERSITY OF INFORMATION TECHNOLOGY
FACULTY OF COMPUTER NETWORK AND COMMUNICATION

REPORT
Subject: Basic Network Programming
Semester II (2021 – 2022)

Report Lab 2

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Class: NT106.M21.ANTN

University of Information Technology

Lecturer: Đỗ Thị Hương Lan

Hồ Chí Minh City, March 2022

Report Lab 2

Student Information

Full Name: Võ Anh Kiệt

Student ID Number: 20520605

Class: ANTN2020

Device Information

CPU: Intel core i5 – 8250U @ 1.60 GHz

Ram: 16 GB DDR3L

SSD M2 SATA: 500GB

HDD: 1000GB

Display chip name: UHD 620

Task 1

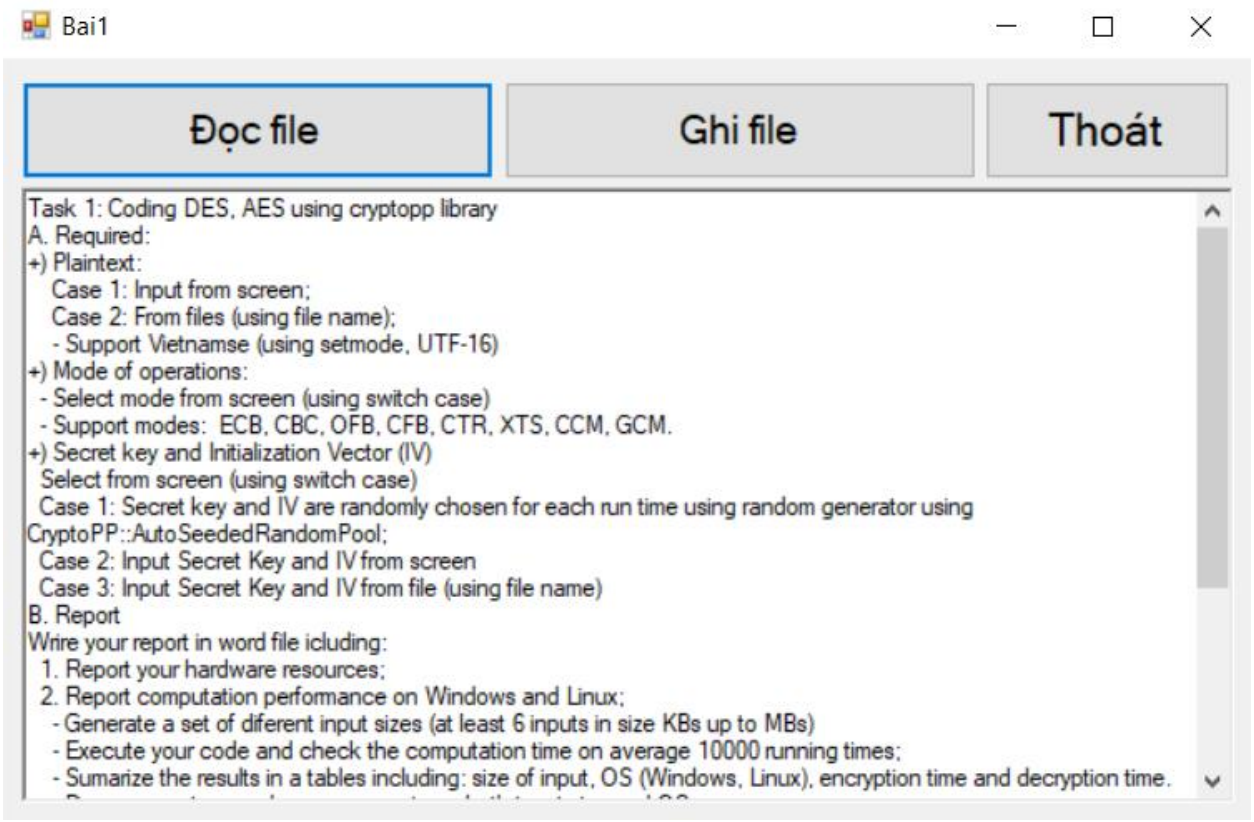
readData Function using FileStream and StreamReader

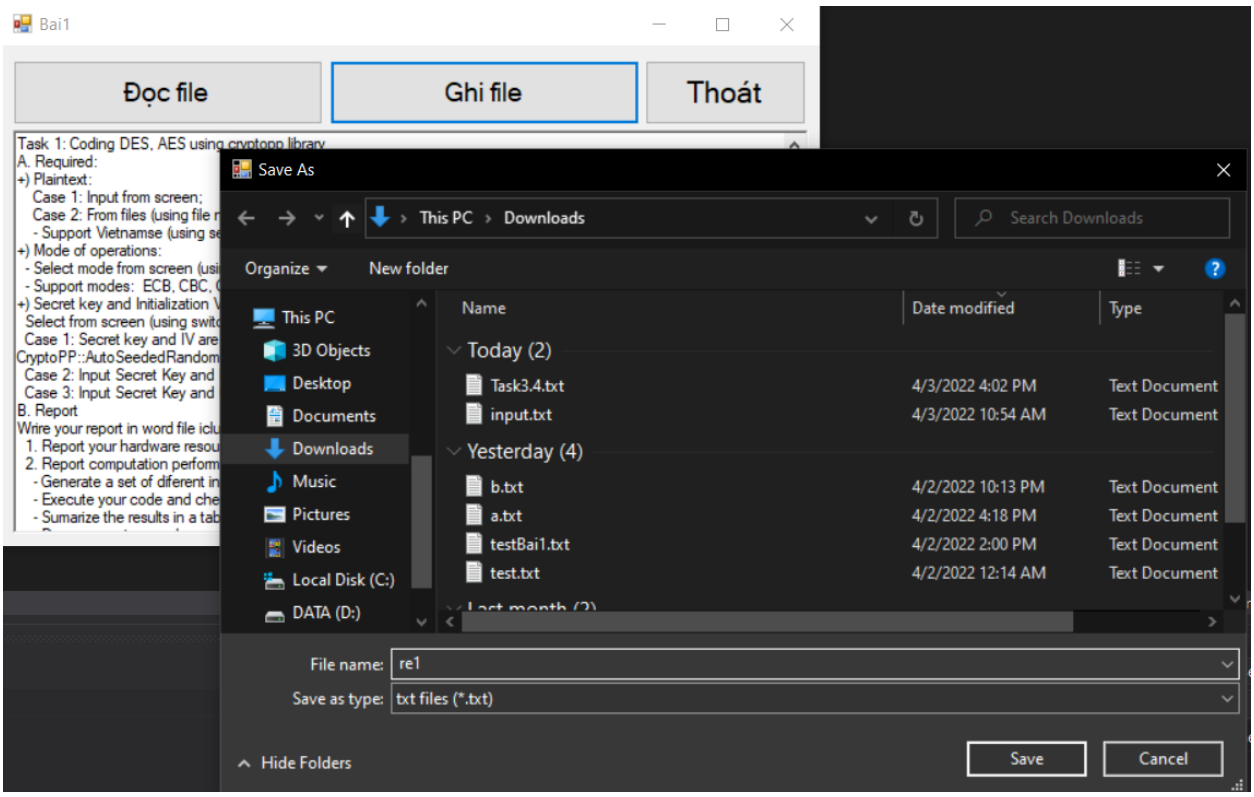
```
try
{
    OpenFileDialog ofd = new OpenFileDialog();
    ofd.ShowDialog();
    FileStream fs = new FileStream(ofd.FileName, FileMode.OpenOrCreate);
    StreamReader sr = new StreamReader(fs);
    richTextBox1.Text = sr.ReadToEnd();
    fs.Close();
}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

writeData Function using FileStream and StreamReader

```
try
{
    string str = richTextBox1.Text;
    str = str.ToUpper();
    SaveFileDialog saveFile = new SaveFileDialog();
    saveFile.Filter = "txt files (*.txt)|*.txt";
    saveFile.ShowDialog();
    FileStream fs = new FileStream(saveFile.FileName, FileMode.Create);
    StreamWriter sw = new StreamWriter(fs, Encoding.UTF8);
    sw.WriteLine(str);
    sw.Close();
    fs.Close();
}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

Deploy


Bai1
Đọc file
Ghi file
Thoát
Task 1: Coding DES, AES using cryptopp library
A. Required:
+) Plaintext:
Case 1: Input from screen;
Case 2: From files (using file name);
- Support Vietnamse (using setmode, UTF-16)
+) Mode of operations:
- Select mode from screen (using switch case)
- Support modes: ECB, CBC, OFB, CFB, CTR, XTS, CCM, GCM.
+) Secret key and Initialization Vector (IV)
Select from screen (using switch case)
Case 1: Secret key and IV are randomly chosen for each run time using random generator using
CryptoPP::AutoSeededRandomPool;
Case 2: Input Secret Key and IV from screen
Case 3: Input Secret Key and IV from file (using file name)
B. Report
Wrire your report in word file icluding:
1. Report your hardware resources;
2. Report computation performance on Windows and Linux;
- Generate a set of diferent input sizes (at least 6 inputs in size KBs up to MBs)
- Execute your code and check the computation time on average 10000 running times;
- Sumarize the results in a tables including: size of input, OS (Windows, Linux), encryption time and decryption time.

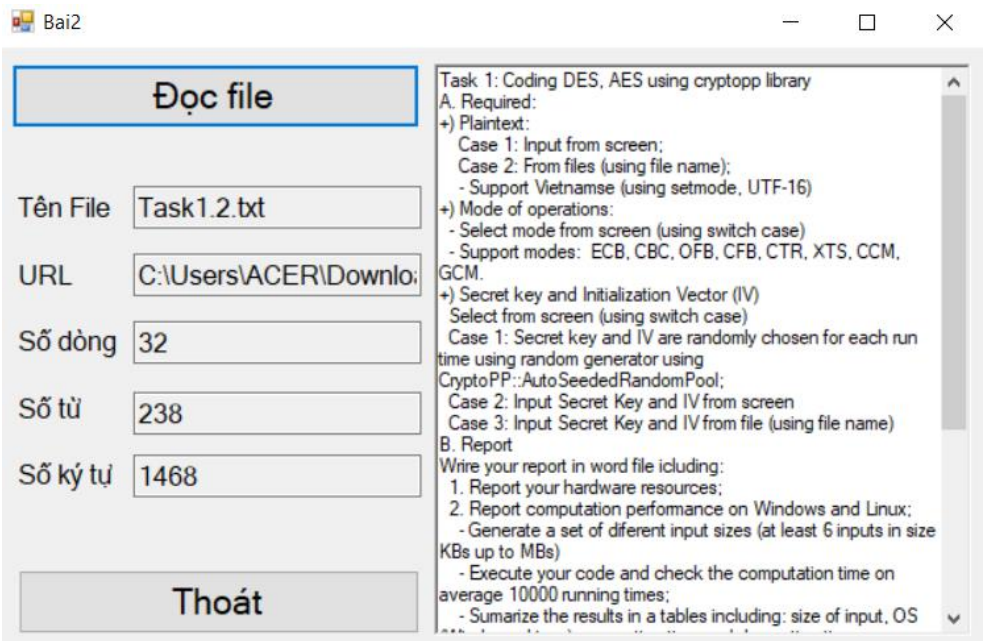

Bai1
Đọc file
Ghi file
Thoát
Save As
This PC › Downloads
Search Downloads
Organize
New folder
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
DATA (D:)
Name
Date modified
Type
Today (2)
Task3.4.txt 4/3/2022 4:02 PM Text Document
input.txt 4/3/2022 10:54 AM Text Document
Yesterday (4)
b.txt 4/2/2022 10:13 PM Text Document
a.txt 4/2/2022 4:18 PM Text Document
testBai1.txt 4/2/2022 2:00 PM Text Document
test.txt 4/2/2022 12:14 AM Text Document
File name: re1
Save as type: txt files (*.txt)
Hide Folders
Save
Cancel

Task 2

readData Function and the following information with the data include: fileName, Link, lineCounter, wordCounter and charCounter.

```
OpenFileDialog ofd = new OpenFileDialog();
ofd.ShowDialog();
FileStream fs = new FileStream(ofd.FileName, FileMode.OpenOrCreate);
StreamReader sr = new StreamReader(fs);

string content = sr.ReadToEnd();
richTextBox1.Text = content;

textBox1.Text = ofd.SafeFileName.ToString();

textBox2.Text = ofd.FileName;

content = content.Replace("\r\n", "\r");
int lineCount = richTextBox1.Lines.Count();
content = content.Replace('\r', ' ');

textBox3.Text = lineCount.ToString();

string[] source = content.Split(new char[] { '.', '?', '!', ' ', ';',':', ',' }, StringSplitOp
int wordCount = source.Count();

textBox4.Text = wordCount.ToString();

int charCount = content.Length;
textBox5.Text = charCount.ToString();
```

Deploy



Task 3

readData Function to get the data

```
try
{
    OpenFileDialog ofd = new OpenFileDialog();
    ofd.ShowDialog();
    FileStream fs = new FileStream(ofd.FileName, FileMode.OpenOrCreate);
    StreamReader sr = new StreamReader(fs);
    richTextBox1.Text = sr.ReadToEnd();
    fs.Close();
}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

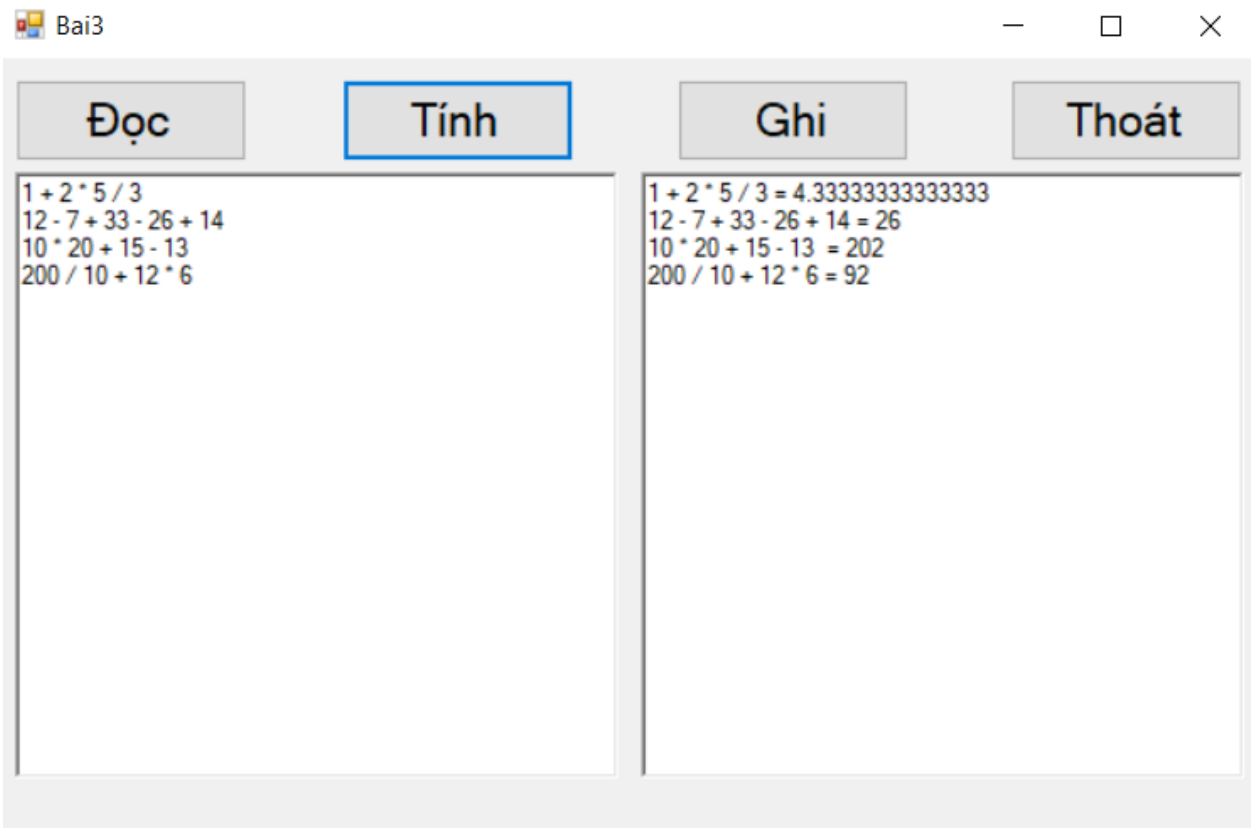
writeData Function to save the data to file

```
try
{
    string str = richTextBox2.Text;
    SaveFileDialog saveFile = new SaveFileDialog();
    saveFile.Filter = "txt files (*.txt)|*.txt";
    saveFile.ShowDialog();
    FileStream fs = new FileStream(saveFile.FileName, FileMode.Create);
    StreamWriter sw = new StreamWriter(fs, Encoding.UTF8);
    sw.WriteLine(str);
    sw.Close();
    fs.Close();
}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

calculateData Function to get the result of Data getting from file

```
try
{
    string str = richTextBox1.Text;
    string str2 = "";
    string[] substr = str.Split('\n');

    foreach (string element in substr)
    {
        double result = Convert.ToDouble(new DataTable().Compute(element, null));
        str2 += element + " = " + result + "\n";
    }

    richTextBox2.Text = str2;

}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

Deploy



Task 4

Use this function to get the Data, then generate the data, after that calculate the average point and finally transfer to Excel file

```
OpenFileDialog ofd = new OpenFileDialog();
ofd.ShowDialog();
FileStream fs = new FileStream(ofd.FileName, FileMode.OpenOrCreate);
StreamReader sr = new StreamReader(fs);

string content = sr.ReadToEnd();
content = content.Substring(0, content.LastIndexOf('\n'));
string[] subcontent = content.Split('\n');
List<string[]> dataShow = new List<string[]>();
for (int i = 0; i < subcontent.Length; i++)
{
    string repo1 = subcontent[i].ToString();
    string[] repo2 = repo1.Split(';');
    double tb = (Convert.ToDouble(repo2[3]) + Convert.ToDouble(repo2[4])) / 2;
    string tbtext = tb.ToString();
    string tmp = repo1 + ";" + tbtext;
    string[] repo3 = tmp.Split(';');
    dataShow.Add(repo3);
}
ListToExcel("C:\\Users\\ACER\\Downloads\\exceltest.xlsx", dataShow);
sr.Close();
fs.Close();
```

Use this function to get the data from Excel and show in form

```
List<string[]> dataFile = new List<string[]>();
ExcelToList("C:\\Users\\ACER\\Downloads\\exceltest.xlsx", dataFile);
richTextBox1.Text = "";
foreach (string[] row in dataFile)
{
    foreach (string cell in row)
    {
        richTextBox1.Text += cell + " ";
    }
    richTextBox1.Text += "\n";
}
```

ListToExcel Function

```
1 reference
public void ListToExcel(string excelFileName, List<string[]> list)
{
    var xlApp = new Excel.Application();
    var xlWorkBook = xlApp.Workbooks.Add();
    var xlWorkSheet = (Worksheet)xlWorkBook.Worksheets.Item[1];
    for (int i = 0; i < list.Count; i++)
    {
        for (int j = 0; j < list[i].Length; j++)
        {
            xlWorkSheet.Cells[i + 1, j + 1].Value = list[i][j];
        }
    }
    xlWorkSheet.SaveAs(excelFileName);
    xlWorkBook.Close(true);
    xlApp.Quit();
}
```

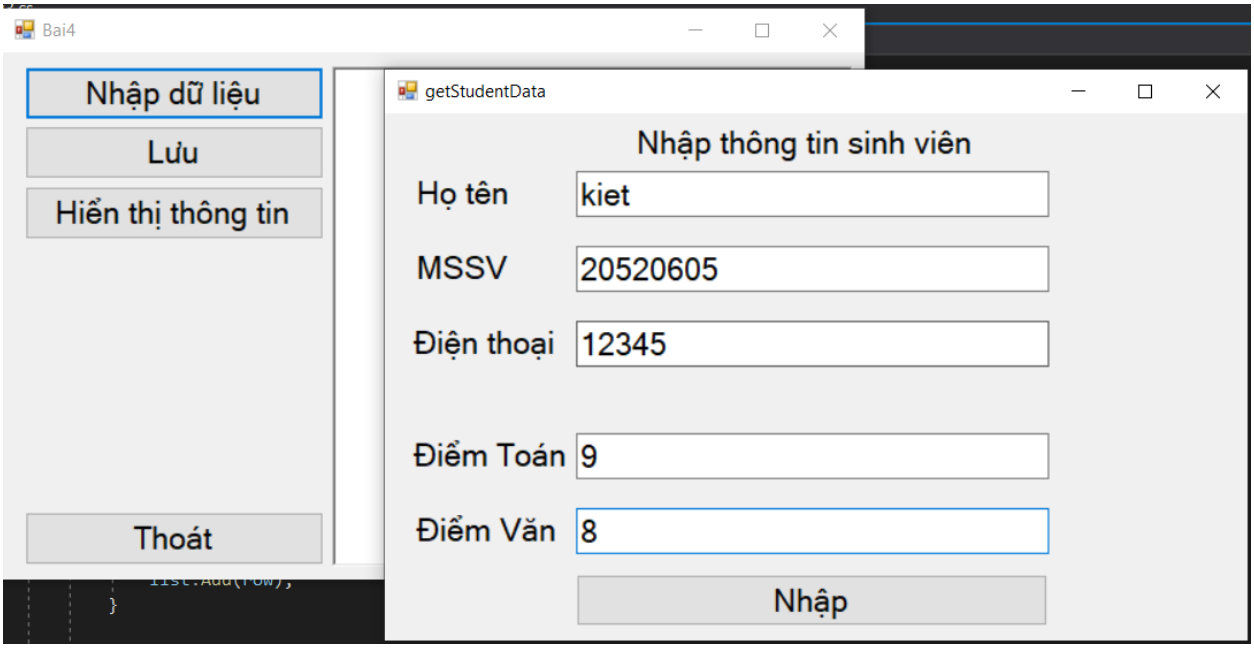
ExcelToList Function

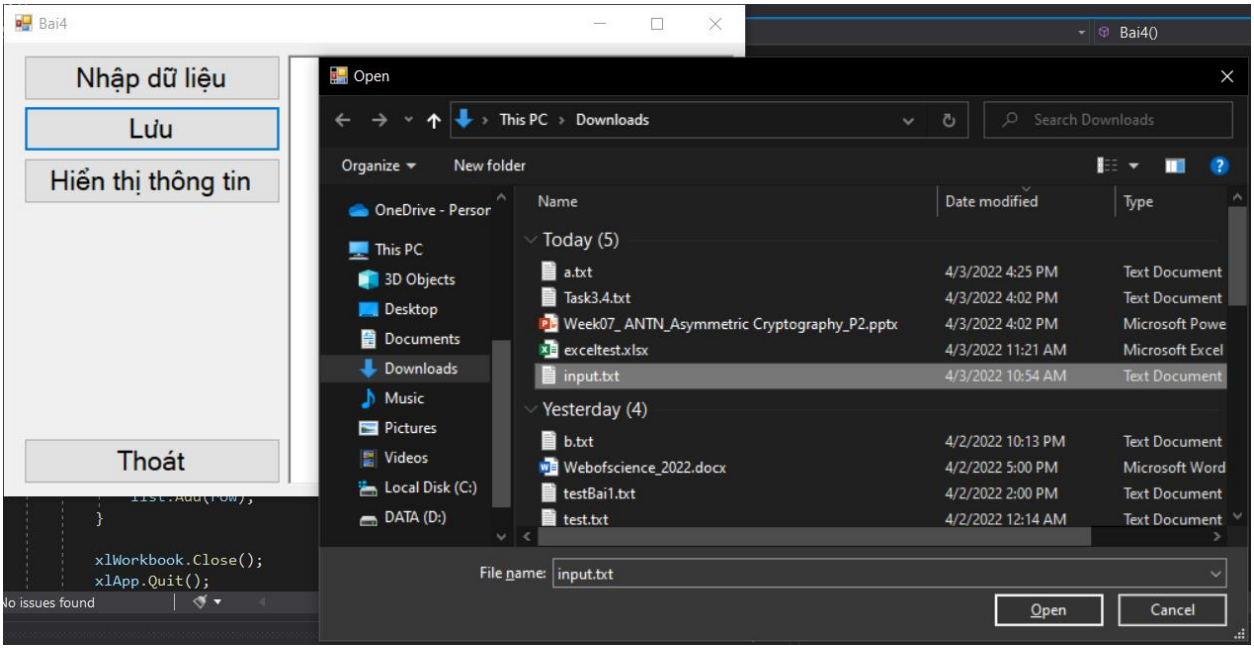
```
public void ExcelToList(string excelFileName, List<string[]> list)
{
    Excel.Application xlApp = new Excel.Application();
    Excel.Workbook xlWorkbook = xlApp.Workbooks.Open(excelFileName);
    Excel._Worksheet xlWorksheet = xlWorkbook.Sheets[1];
    Excel.Range xlRange = xlWorksheet.UsedRange;

    int rowCount = xlRange.Rows.Count;
    int colCount = xlRange.Columns.Count;

    for (int i = 1; i <= rowCount; i++)
    {
        string[] row = new string[colCount];
        for (int j = 1; j <= colCount; j++)
        {
            row[j - 1] = xlRange.Cells[i, j].Value2.ToString();
        }
        list.Add(row);
    }

    xlWorkbook.Close();
    xlApp.Quit();

    Marshal.ReleaseComObject(xlRange);
    Marshal.ReleaseComObject(xlWorksheet);

    Marshal.ReleaseComObject(xlWorkbook);
    Marshal.ReleaseComObject(xlApp);
}
```

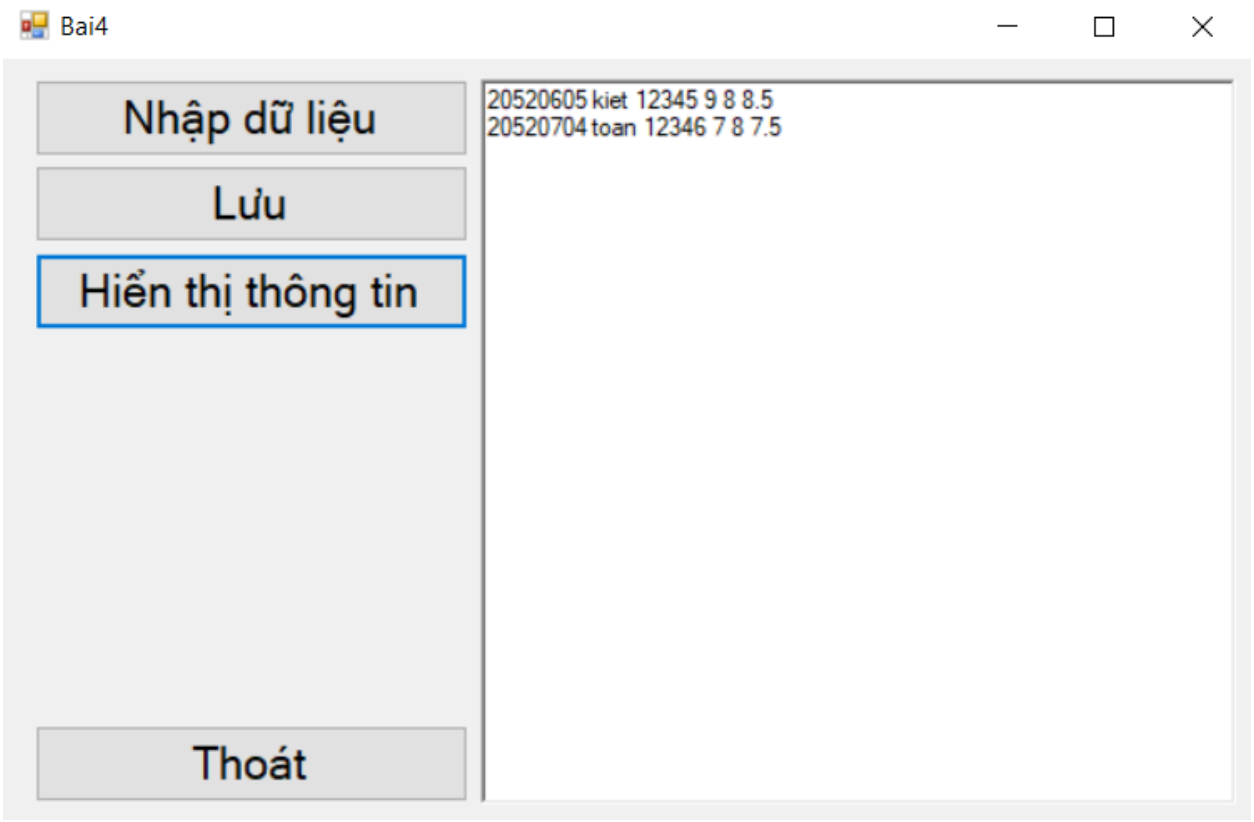
getDataStudent Function

```
try
{
    string str = textBox2.Text + ";" + textBox1.Text + ";" + textBox3.Text + ";" + textBox4.Text +
    SaveFileDialog saveFile = new SaveFileDialog();
    saveFile.Filter = "txt files (*.txt)|*.txt";
    saveFile.FileName = "input.txt";
    saveFile.ShowDialog();
    FileStream fs = new FileStream(saveFile.FileName, FileMode.Append, FileAccess.Write);
    StreamWriter sr = new StreamWriter(fs, Encoding.UTF8);
    sr.Write(str);
    sr.Close();
    fs.Close();
}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

Deploy




Bai4
Nhập dữ liệu
Lưu
Hiển thị thông tin
Thoát
Bai4()
Open
This PC › Downloads
Search Downloads
Organize
New folder
OneDrive - Persor
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
DATA (D:)
Name
Date modified
Type
Today (5)
a.txt 4/3/2022 4:25 PM Text Document
Task3.4.txt 4/3/2022 4:02 PM Text Document
Week07_ ANTN_Asymmetric Cryptography_P2.pptx 4/3/2022 4:02 PM Microsoft Powe
exceltest.xlsx 4/3/2022 11:21 AM Microsoft Excel
input.txt 4/3/2022 10:54 AM Text Document
Yesterday (4)
b.txt 4/2/2022 10:13 PM Text Document
Webofscience_2022.docx 4/2/2022 5:00 PM Microsoft Word
testBai1.txt 4/2/2022 2:00 PM Text Document
test.txt 4/2/2022 12:14 AM Text Document
File name: input.txt
Open
Cancel
xlWorkbook.Close();
xlApp.Quit();
No issues found


Bai4
Nhập dữ liệu
Lưu
Hiển thị thông tin
Thoát
20520605 kiet 12345 9 8 8.5
20520704 toan 12346 7 8 7.5

Task 5

Function to get the input link of file then show the including data

```
try
{
    string str = textBox2.Text + ";" + textBox1.Text + ";" + textBox3.Text + ";" + textBox4.Text +
    SaveFileDialog saveFile = new SaveFileDialog();
    saveFile.Filter = "txt files (*.txt)|*.txt";
    saveFile.FileName = "input.txt";
    saveFile.ShowDialog();
    FileStream fs = new FileStream(saveFile.FileName, FileMode.Append, FileAccess.Write);
    StreamWriter sr = new StreamWriter(fs, Encoding.UTF8);
    sr.Write(str);
    sr.Close();
    fs.Close();
}
catch (Exception tmp)
{
    MessageBox.Show("Caution: " + tmp.Message);
}
```

Deploy