C# Tutorial – Create a UCAS Calculator for BTEC V1

Welcome to this UCAS calculator tutorial. In this tutorial we will create a simple UCAS calculator using visual studio with C# programming language. In this tutorial we will be looking in-depth information about the components used flow charts and the outcome of the program.

Lesson objectives

1. Using the components in visual studio such as text box, labels and buttons
2. Using c# if statements to determine the results
3. Calculating results based on user input
4. GUI elements used in windows form
5. Users will enter pp, mp, mm, dm, dd
6. Based on the user input the program will display the results accordingly.

In order for us to be able to calculate the output of this we need to know how they are calculated. We don't want to give wrong information to our users.

Here is the information we will use

Edexcel BTEC National Diploma/Certificate/Award (NQF)

Select a different Tariff table

Edexcel BTEC National Diploma/Certificate/Award (NQF)

Diploma	Certificate	Award	Tariff points
DDD			360
DDM			320
DMM			280
MMM	DD		240
MMP	DM		200
MPP	MM		160
PPP	MP	D	120
	PP	M	80
		P	40

Source - https://www.ucas.com/ucas/undergraduate/getting-started/entry-requirements/tariff/tariff-tables/1171

By using the official BTEC calculation metrics we can ensure that our users will have the up-to-date results.

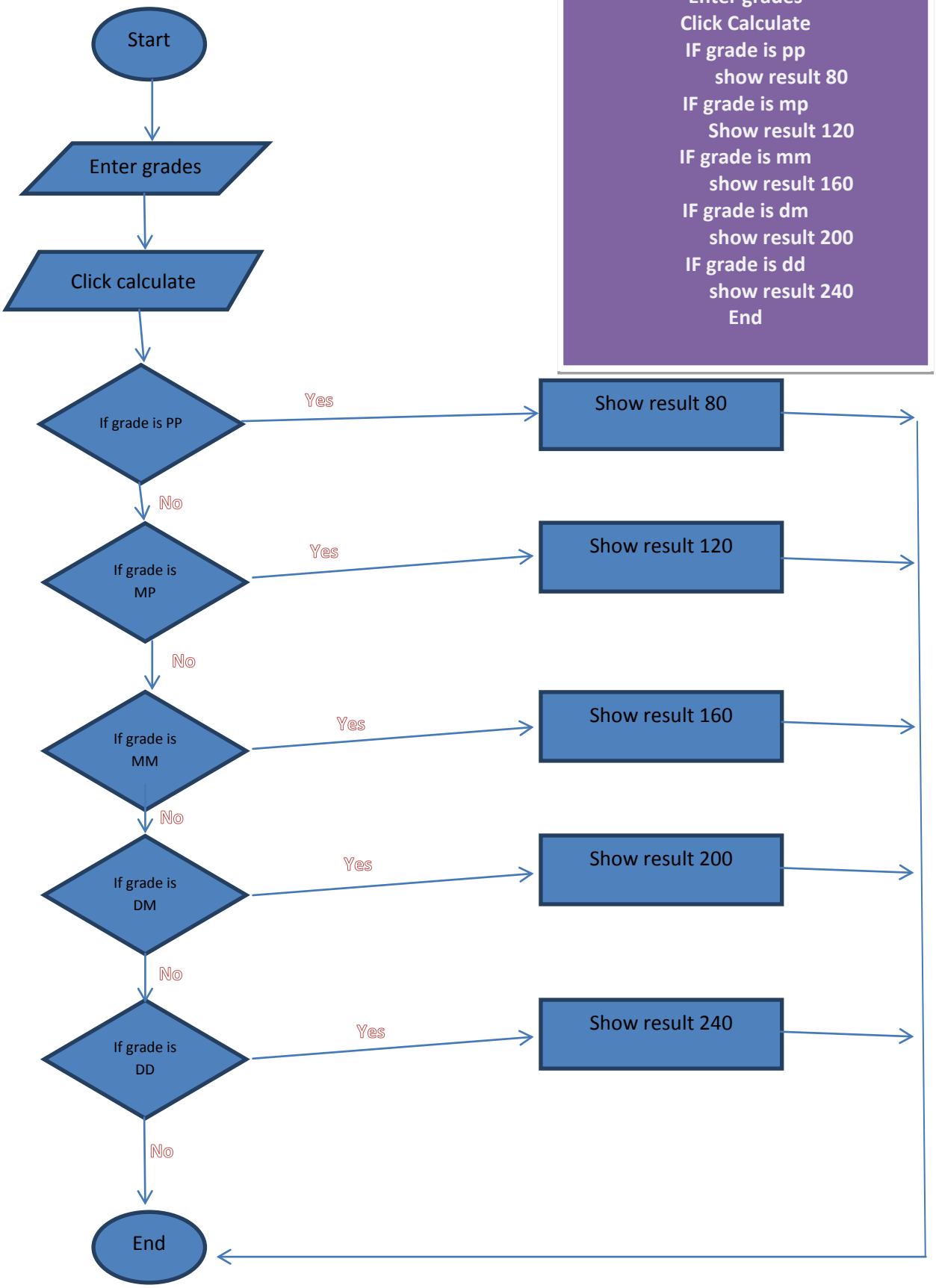
So now then let's get started with this application development.

First lets create a Flow chart diagram which can determine how the application development will go forward.

Flow chart for the UCAS calculator

Algorithm

Start the application
Enter grades
Click Calculate
IF grade is pp
show result 80
IF grade is mp
Show result 120
IF grade is mm
show result 160
IF grade is dm
show result 200
IF grade is dd
show result 240
End

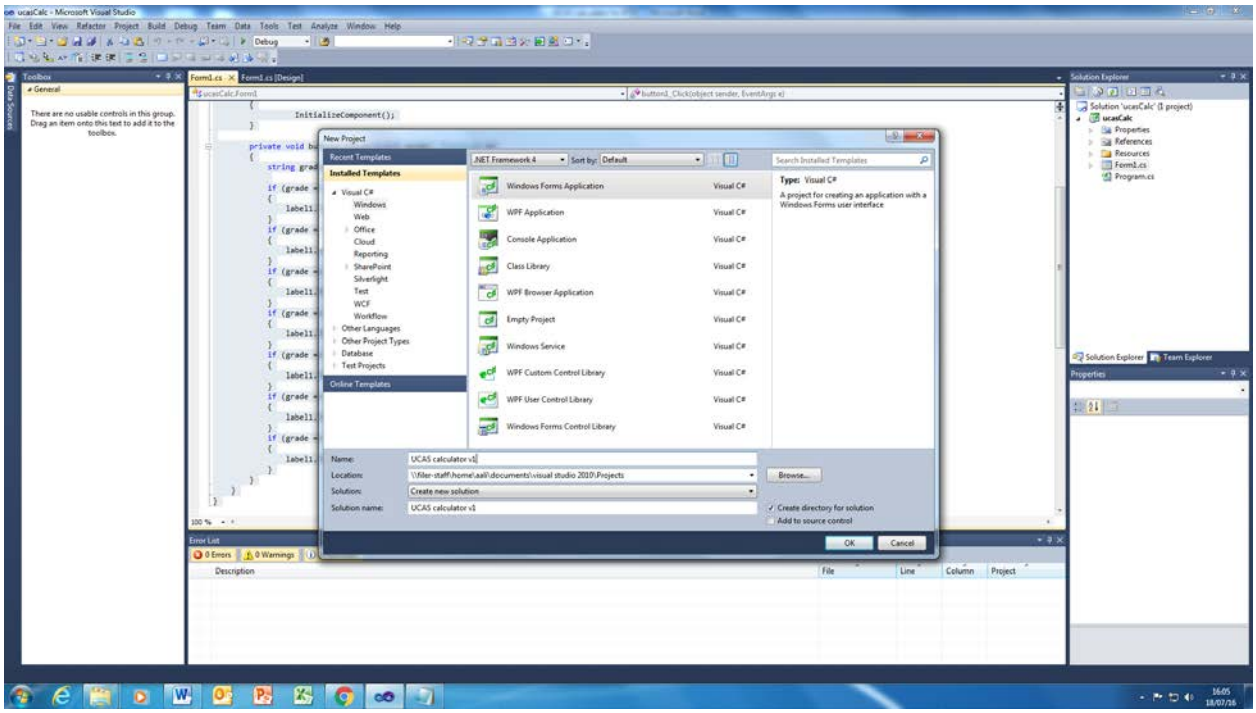


Lets get started with the UCAS calculator now.

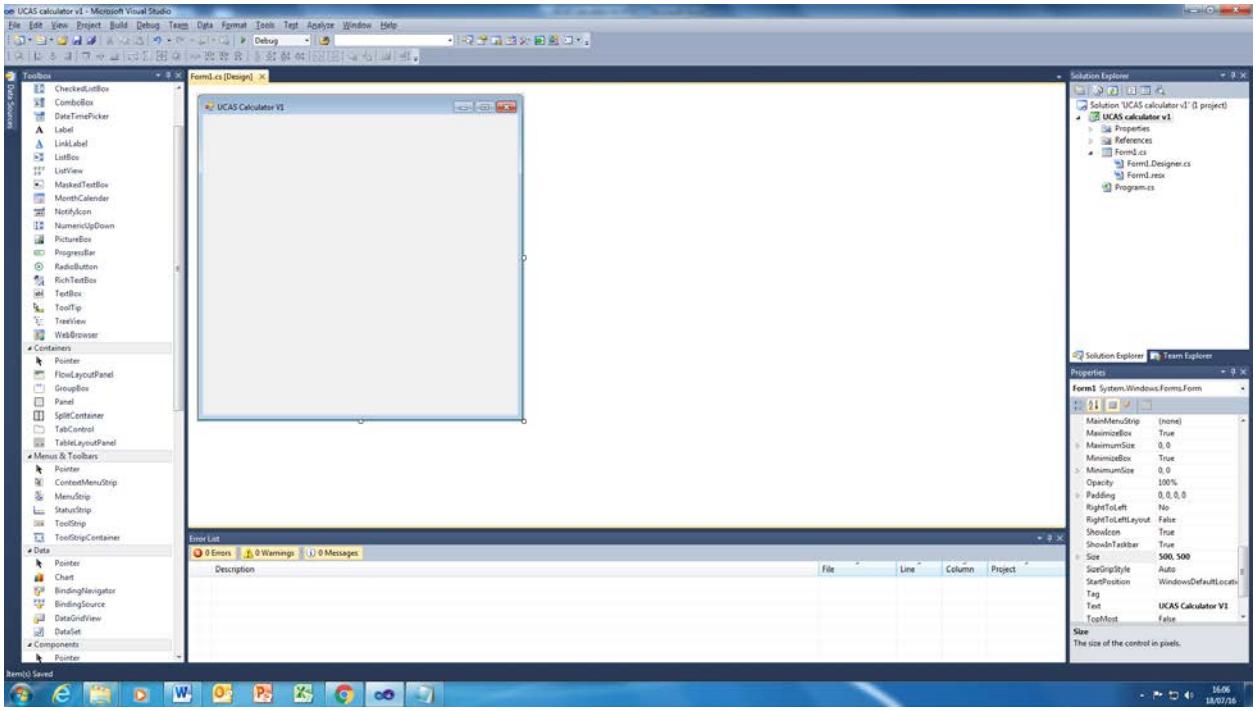
Start a new project in visual studio.

C# -> windows form application

Name it UCAS calculator v1 (v1 because we will do another type of UCAS calculator in another tutorial)



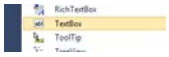
Click OK



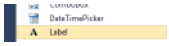
Inside the properties window change the size to 500,500 and change the text to UCAS Calculator V1.

The components we will need for this application are –

1 text box



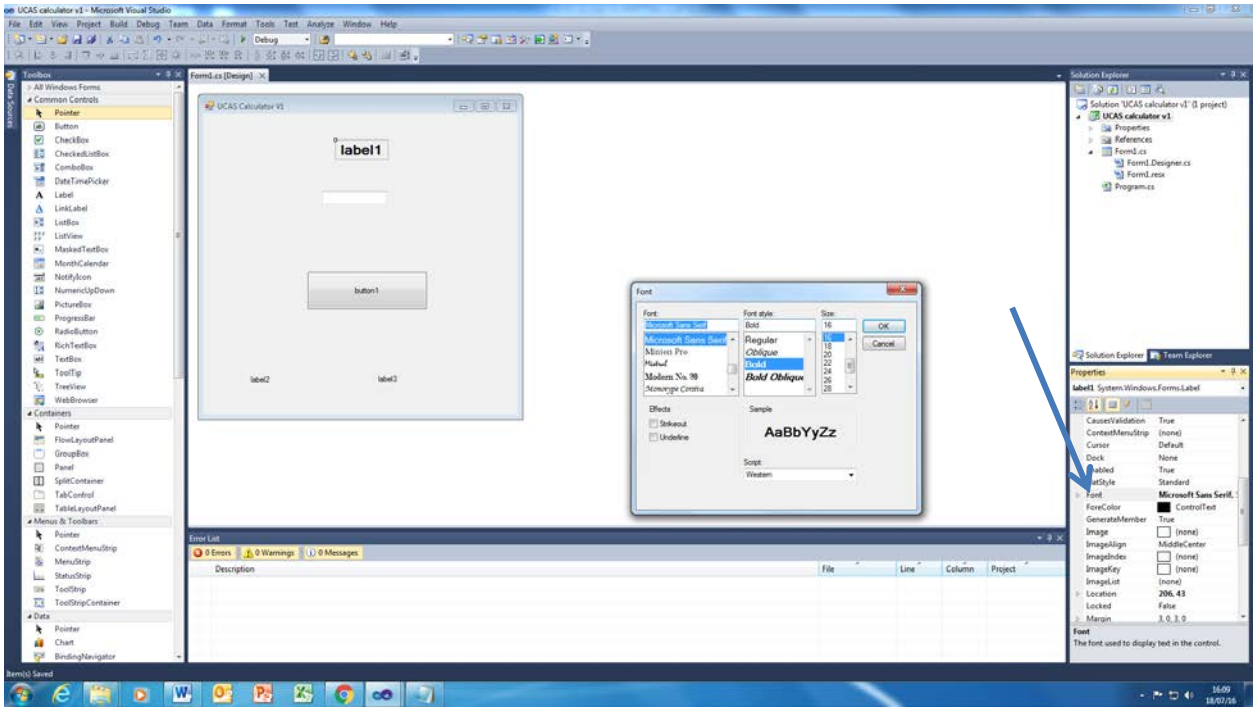
3 labels



And 1 button

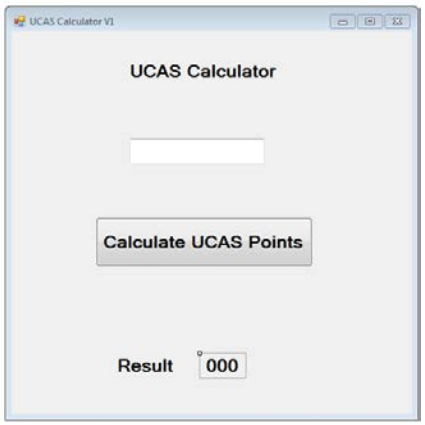
Here are all of the components in the Windows Form

We need to make them bigger so it can be seen in the windows form.



Click on label1 and look into the properties window. You will find an option called Font. Change the font according to the screen shot above.

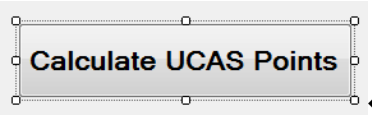
This is the final look of the form



All of the elements on the form have the same font, bold and size 16 including the text box and the button.

Now let's enter the code for this application.

Double click on the button



←Double click this

```
privatevoid button1_Click(object sender, EventArgs e)
        {

        }
```

Visual studio will automatically add the code above. All the logic for this calculator will be inside the curly brackets { }

```
privatevoid button1_Click(object sender, EventArgs e)
        {
String grade = textBox1.Text;
grade = grade.ToLower();

        }
```

We have added our first variable for this program. This variable has a data type of string meaning text. We will capture what the user enters in the textbox1 and store it inside this string. So if the user enters PP, MP, MM, DM or DD it will be stored inside this variable.

We cannot control how the user will enter the grades they achieved in college. However we can control how the program inputs it. So on the second line you can see that we are calling the grade variable again but this time we are using this toLower() function which will take any letter and turn in to lower case.

This way we don't have to worry about the upper or lower case letters the program will sort it out for us.

According to the flow chart we have created before we will need a rather large IF statement inside this function to calculate the UCAS points.

```
privatevoid button1_Click(object sender, EventArgs e)
        {
String grade = textBox1.Text;

grade = grade.ToLower();
```

```
if (grade == "pp")
            {
                label3.Text = "80";
            }
elseif (grade == "mp")
            {
                label3.Text = "120";
            }
elseif (grade == "mm")
            {
                label3.Text = "160";
            }
elseif (grade == "dm")
            {
                label3.Text = "200";
            }
elseif (grade == "dd")
            {
                label3.Text = "240";
            }
else
            {
MessageBox.Show("Enter a valid grade");
            }
        }
```

Take a look this if statement. We are going to check the value inside the grade variable.

If the grade is equals to pp or Pass Pass it will return 80

If the grade is equals to mp or Merit Pass it will return 120

If the grade is equals to MM or merit merit it will return 160

If the grade is equals to DM or distinction merit it will return 200

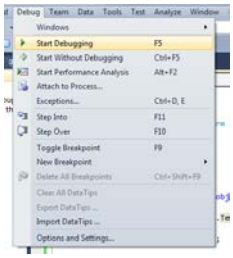
If the grade is equals to DD or distinction distinction it will return 240

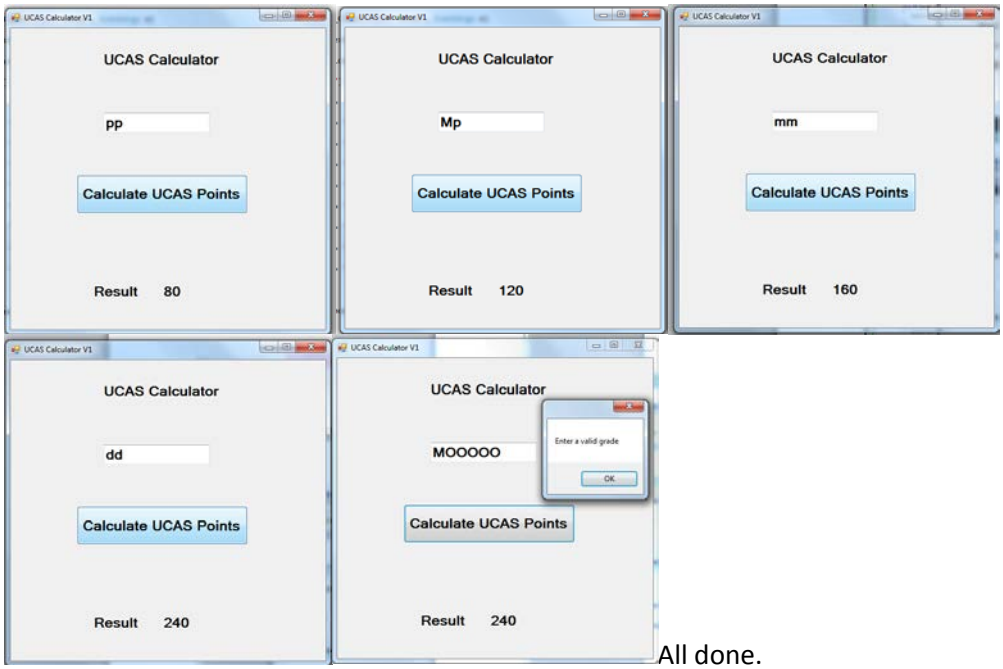
Else if none of the above is entered then program will display an error message stating enter a valid grade.

Simple right.

Now try it out

Go to Debug → Start Debug or Press F5





All done.