

## Lesson 20 – From B4J to B4A

🕒 2

### What students should know

- Transfer a B4J project to B4A

### Congratulations!

Having completed the courses up to this point you can say that you have acquired a good knowledge of the language B4X. What you've learned so far it is only the beginning of the journey of the "art" of programming.

In addition, the B4X language as discussed in previous chapters can be used to build mobile applications on both Android and IOS. With minimal changes and without having to learn new commands you can transfer an application written in Windows with B4J to Android and the language B4A.

In this last chapter you will deal with the conversion of a program (given ready) into a program for Android.



Picture 1 B4X Languages

### Application description in B4J

The application is a simple calculator that performs basic operations.

#### Designer

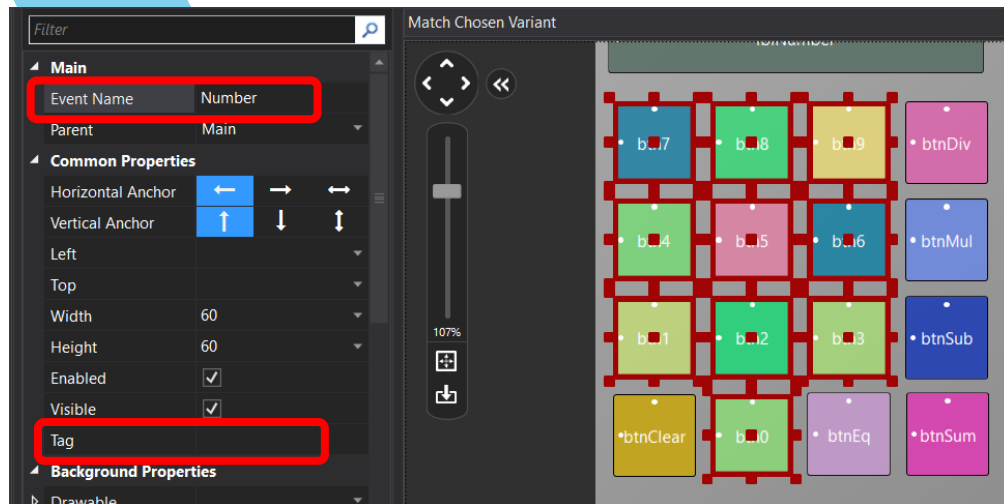
The app consists of 16 different buttons and a label that displays the numbers.

The 10 buttons are the numbers from 0 to 9 and the rest are the basic operations, equality and clear.



Picture 2 Simple Calculator

In programs like the one that you need to manage multiple buttons, in order not to use separate events for each event `_click`, it is possible to group the events `_click`.



For example, after selecting all the buttons listed in the numbers from 0 to 9, then set the "Event Name" properties, for example Number. Now all buttons have a common click event named Number\_Click.

```
Private Sub Number_Click
    Dim b As Button
    b = Sender
    Log(b.Tag)
    If done Then
        lblNumber.Text = 0
        done = False
    End If
    lblNumber.Text = lblNumber.Text & b.Tag
End Sub
```

Also, for you to have a different value from each button you need to update the "tag" property. Assign a value to each different number. For example, in btnNumber1, set "tag" to 1, in btnNumber2 set "Tag" to 2 and so on.

Now in the event take advantage of the Tag value to enter a new number.

Sender assigns the clicked button to variable b.

The program code is as follows. Notice that no buttons have been declared as variables:

```
Sub Class_Globals
    Private Root As B4XView
    Private xui As XUI
    Private lblNumber As Label
    Private fltNumber1, fltNumber2 As Float
    Private operation As String
    Private done As Boolean 'When true an operation just finished
End Sub

Public Sub Initialize
End Sub

Private Sub B4XPage_Created (Root1 As B4XView)
    Root = Root1
End Sub
```

```

Root.LoadLayout("MainPage")
lblNumber.Text = ""
done = False
End Sub

'When Number button clicked add to string lblNumber new Number
'from tag
Private Sub Number_Click
    Dim b As Button
    b = Sender
    If done Then
        lblNumber.Text = 0
        done = False
    End If
    lblNumber.Text = lblNumber.Text & b.Tag
End Sub

'When Clear Button clicked clear all numbers and operations
Private Sub btnClear_Click
    lblNumber.Text = 0
    fltNumber1 = 0
    fltNumber2 = 0
End Sub

'When an operation button clicked set operation string to tag
'of clicked operation button
Private Sub operation_Click
    Dim b As Button
    b = Sender
    operation = b.Tag
    fltNumber1 = lblNumber.Text
    lblNumber.Text = 0
End Sub

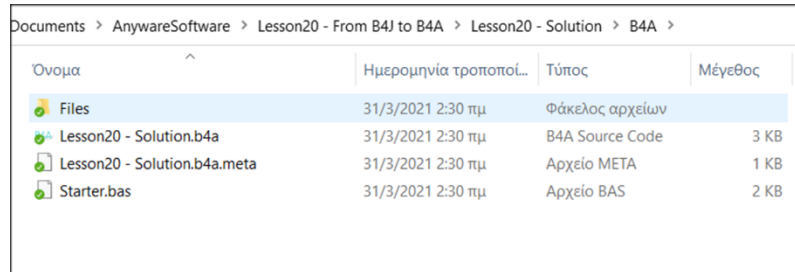
'When button "=" clicked check operation string and do the operation
Private Sub btnEq_Click
    fltNumber2 = lblNumber.Text
    If operation = "+" Then
        lblNumber.Text = fltNumber1 + fltNumber2
    else If operation = "-" Then
        lblNumber.Text = fltNumber1 - fltNumber2
    else If operation = "*" Then
        lblNumber.Text = fltNumber1 * fltNumber2
    else If operation = "/" Then
        lblNumber.Text = fltNumber1 / fltNumber2
    End If
    fltNumber1 = lblNumber.Text
    done = True
End Sub

```



## Transfer the app to B4A and Android

Already when you start an application the appropriate folder for B4A and B4i has already been created even though you are not using it yet.



Όνομα	Ημερομηνία τροποποι...	Τύπος	Μέγεθος
Files	31/3/2021 2:30 πμ	Φάκελος αρχείων	
Lesson20 - Solution.b4a	31/3/2021 2:30 πμ	B4A Source Code	3 KB
Lesson20 - Solution.b4a.meta	31/3/2021 2:30 πμ	Αρχείο META	1 KB
Starter.bas	31/3/2021 2:30 πμ	Αρχείο BAS	2 KB

To start the transfer, you will need to install the B4A. For instructions on installation, see the link <https://www.b4x.com/b4a.html>.

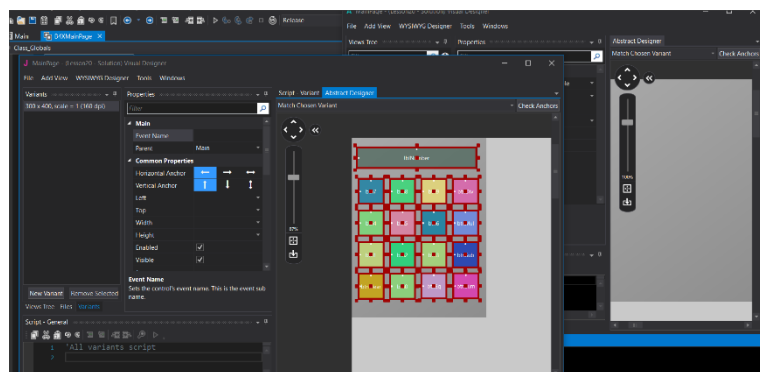
After you complete the installation do not forget to install on your mobile the application **B4A-Bridge** which will help you transfer the calculator to the mobile. The app is free to install from Google Play.

## Transfer of design

Open the calculator with B4J. Similarly open the calculator with B4A. The file of interest is located within the B4A folder and has a b4a extension. Already all the code of the application exists within the B4A!

Open the Designer which visually makes no difference to that of b4j.

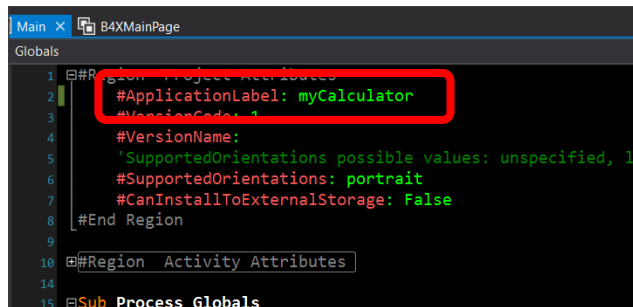
The design has not been transferred to the B4A but you can easily select all objects from the designer of B4J by copying and pasting to the screen of the designer of B4A.



You can also make any changes you want to make your app look. Finally, save the changes and return to B4A.

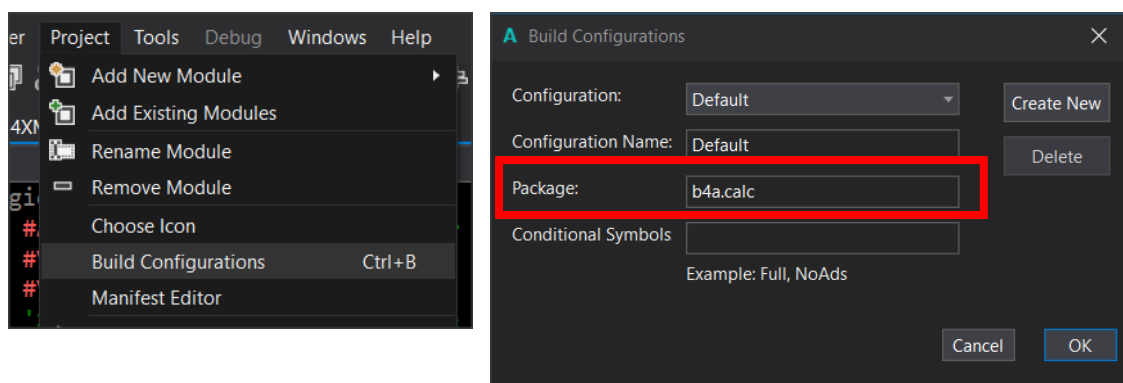
## Install an app on your mobile phone.

Before installing the app on a mobile device, you must specify the name of your app and the name of the "package" to be sent to the mobile.



From the tab Main specify the name you want the application to have in the directive #ApplicationLabel:  
It's the name that will appear on the screen of your mobile phone or tablet.

Picture 3 Application Label

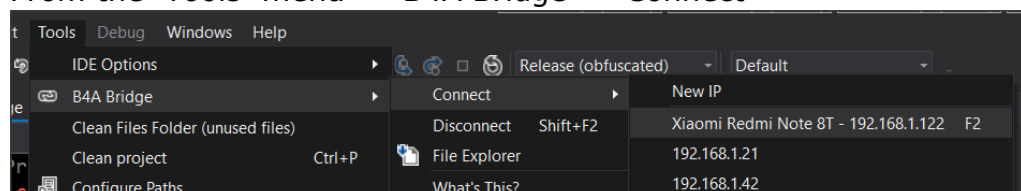


Picture 4 Build Configurations

From the Build Configurations menu, specify the name of thePackage:This should be something unique for your device, which is why it is recommended to start with"b4a.". In the example, the package name is "b4a.calc».

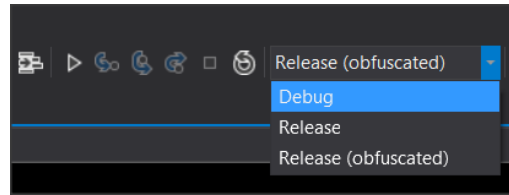
Installation on the mobile phone requires that you have already installed the application B4A-Bridge.

1. Launch the B A-Bridge app on your Android device and make sure that it's connected to your local network.
2. From the Tools menu -> B4A Bridge -> Connect

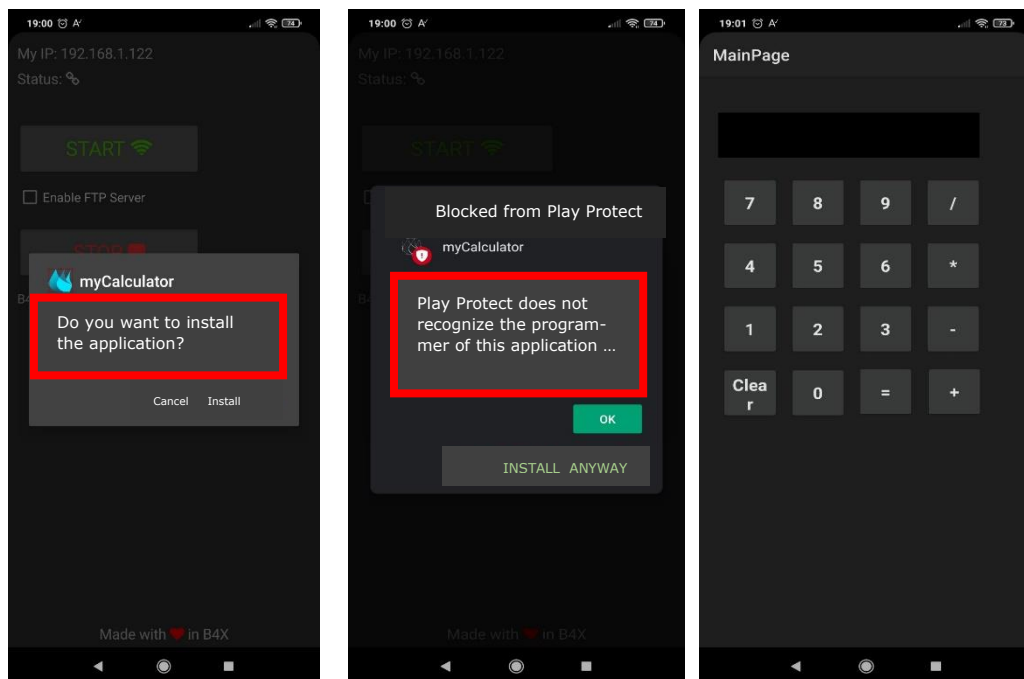


Select your device that should appear in the menu. If you can't find it, check to see if it's connected to your local area network.

3. Select the type of installation to perform. Debug if you are in the process of debugging the application and Release once you are finished with the deployment and want it to run independently of the development environment of B4A.



4. Tap the run icon and check your phone in B4A-Bridge.



During installation, you may receive a message from Play Protect that you can ignore and continue.