# Coin Flip Tutorial- Short Handout

| Getting StartedOpen [App Inventor with the Coin Flip Media Only template](http://ai2.appinventor.mit.edu/?repo=templates.appinventor.mit.edu/trincoll/csp/unit4/templates/CoinFlipMediaOnly/CoinFlipMediaOnly.asc). This will open a project that contains the images you will need in this lesson. Use the Projects/*Save As* option to rename your project to *CoinFlip.*  |  |
| --- | --- |

# Designing the User Interface (UI)

| **UI Component**  | **Name** | **Properties** |
| --- | --- | --- |
| Screen | Screen1 | Change:Title = Coin FlipAlignHorizontal = Center |
| Button | Button1 | Change:Text = Flip the CoinWidth= Fill Parent |
| Image | Image1 | * Change:
* Picture = heads.jpg
 |

# Coding the App

| **Variable** | **Value** |
| --- | --- |
| coin | 1 |

#

|  **Event Handler** | **Algorithm** |
| --- | --- |
| Button1.click | Set coin to random integer from 1 to 2If coin = 1, then set Image1.picture to the text “heads.jpg” else set Image1.picture to the text “tails.jpg”  |

# Testing the App

|  **Inputs** | **Expected Outputs** | **Actual Outputs** |
| --- | --- | --- |
| Click “Flip the Coin” | Coin image changes to heads or tails image randomly. | ? |

# Coin Flip Part 2: Repeating the Coin Flip N Times

# Designing the User Interface (UI)



| **UI Component**  | **Name** | **Properties** |
| --- | --- | --- |
| Horizontal Arrangement | HorizontalArrangement1 | Place at the top of the screen.Change:Width = fill parent |
| Image | Image1 | Place in the left side of *HorizontalArrangement1* Change:Width = 50Height = 50 |
| Label | LabelTitle | Place in the right side of *HorizontalArrangement1 .*Change:FontSize = 30Text = Coin Flip Experiment |
| Horizontal Arrangement | HorizontalArrangement2 | Place under *HorizontalArrangement1*.Change:Width = fill parent |
| Label | LabelN | Place in the left side of *HorizontalArrangement2*.Change:Text = N: |
| Text Box | TextBoxN | Place in the middle of *HorizontalArrangement2*.Change:NumbersOnly = checked |
| Button | Button1 | Move to the right side of *HorizontalArrangement2*. Change:Rename = ButtonGoText = Run the Experiment |
| Label | LabelResults | Place below *HorizontalArrangement2*. Change:Width = fill parentFontSize = 24 |

# Coding the App

| **Variables** | **Values** |
| --- | --- |
| N | 0 |
| nHeads | 0 |
| coin |  1 |

|  **Event handlers** | **Algorithms** |
| --- | --- |
| ButtonGo.Click | Set global N to TextBoxN.TextSet global nHeads to 0For each number 1 to get Global N Set coin to random integer from 1 to 2 If coin = 1, then increment nHeads (set nHeads to get nHeads + 1)Set LabelResults.text join 4 blocks: Text “Heads:”, nHeads, Text “ Tails:”, N - nHeads. |

# Testing the App

|  **Inputs** | **Expected Outputs** | **Actual Outputs** |
| --- | --- | --- |
| Type in 100 for N and click Run the Experiment. | Results returned should sum up to 100.The results should also be fairly close to 50% heads and 50% tails. | ? |
| Type in 1000 for N and click Run the Experiment. | Results returned should sum up to 1000. The results should be closer to 500 heads and 500 tails. | ? |