# Coin Flip Tutorial- Short Handout

| Getting Started Open [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 Flip  AlignHorizontal = Center |
| Button | Button1 | Change:  Text = Flip the Coin  Width= 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 2  If 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 = 50  Height = 50 |
| Label | LabelTitle | Place in the right side of *HorizontalArrangement1 .*  Change:  FontSize = 30  Text = 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 = ButtonGo  Text = Run the Experiment |
| Label | LabelResults | Place below *HorizontalArrangement2*.  Change:  Width = fill parent  FontSize = 24 |

# Coding the App

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

| **Event handlers** | | **Algorithms** |
| --- | --- | --- |
| ButtonGo.Click | | Set global N to TextBoxN.Text  Set global nHeads to 0  For 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. | ? |