Smartphone programming Class -2

short line

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **iPhone XsMax** | **iPhone Xr** | **iPhone X, Xs** | **iPhone 6+, 6S+ 7+, 8+** | **iPhone 6, 6s, 7, 8** | **iPhone 5, 5s, 5c, SE** | **iPhone 4, 4s** | **iPhone 2G, 3G, 3GS** |
| **Points**: Coordinated of all drawings are specified in Points . Points are abstract units, they make sense only in this coordinate space | 414 X 896 Points | 414 X 896 Points | 375 X 812 Points | 414 X 736 Points | 375 X 667 Points | 320 X 568 Points | 320 X 480 Points | 320 X 480 Points |
| **Rendered Pixels**: Point based is converted into pixels | (3X)  1242 X 2688 Pixels | (2X)  828 X 1792 Pixels | (3X)  1125 X 2436 Pixels | (3X)  1242 X 2208 Pixels | (2X)  750 X 1334 Pixels | (2X)  640 X 1136 Pixels | (2X)  640 X 960 Pixels | (1X)  320 X 480 Pixels |
| **Physical Pixels**: Device screen may have lower pixel resolution than image rendered in previous step |  |  |  | Size/ 1.15  1080 X 1920 Pixels |  |  |  |  |
| **Physical Device:** Pixels are rendered on screen in terms of PPI(Pixels per inch)  PPI tells you how many pixels fit in one inch. | 448 PPI | 326 PPI | 458 PPI | 401 PPI | 326 PPI | 326 PPI | 326 PPI | 163 PPI |

# Creating Image Assets for an app:

We will use online tool [www.canva.com](http://www.canva.com) please go to the site and register

Create Image assets for following:

* Background (1242 X 2688) Pixels
* Header Image ( 600 X 400 ) Pixels
* Logo Image ( 1024 X 1024 ) Pixels
* Dice Images (100 X 100) Pixels

You can also download Dice Images from Course Contents at Blackboard.

Once you have created all the images navigate to <https://appicon.co> and generate following:

* Icon images for Logo (App Icon Tab)
* Image Set for Background, Header Image and Dice Images (Image Set Tab)

# Starting the Roll A Dice App:

* Create a new App (iPhone only and Swift programming language), once the app is created import all the images and logo in the project and compile the project (Command + B)
* Go to MainStoryboard and then change the Device so that you are looking at iPhone Xs Max.
* Add a new UIImageView into the storyboard and stretch it on the entire screen of the iPhone
* Assign background image to the UIImageView through Attribute inspector
* Add one UIImageView for Header and two UIImageViews for the 2 dice images.
* Assign header image to UIImageView for header and any dice image for both the UIImageViews for the dice images
* Create 3 UI Buttons, one for Reset and two for Bet Less than 7 and Bet More than 7
* Create 2 labels One for Loss and one for Wins
* Open the view so that you can see design and code at same time.
* Control + Drag and create outlets for Dice Images, Labels and assign variable names
* Control + Drag and create 2 action outlets for the buttons.
* Create two variables for random Dice Indexes

var randomDiceIndex1 : Int = 0

var randomDiceIndex2 : Int = 0

* Create new variables for Win and loss
* Add code in the the action for buttons and update win and loss labels
* Add code for action of Reset button.
* Add code for shake motionEnded function
* Refactor code in a function
* Add the code so that the random function is called when apop loads up.

# Introduction to Swift:

**Data Types:**

* **Integer:** Int 5
* **Float:** Float 2.15
* **Double:** Double 3.1415925359
* **Bool:** true, false
* **String:** “Ashish” “North Eastern University”

**Variable Declaration:**

* let iAmAConstant : Int = 42
* var iAmAVariable : Int = 23
* later... iAmAVariable = 46
* var inferredVariable = "I'm a string"
* var optionalString:String? = nil

**Strings**:

* var combi = "\(string1) + \(string2)"
* let numberString = "2"
* var integer =numberString.toInt

**Functions**:

func myMethod() -> Bool {

return true

}

func methodWithParam (a:Int, b:int) {

a + b }

func methodWithParamReturn (a:Int, b:int) -> Int {

var c = a + b

return c

}

func methodWithMultipleReturn(a:Int, b:int) -> (add: Int, product: Int) {

var c = a + b

var d = a \* b

return (c, d)

}

**Conditions**:

if someCondition == true {

//do x }

else { //do y }

Let fruits = [“Apple, “Banana”, “Kiwi”, “Grapes”]

for fruit in fruits {

//do something

}

for i in 0...4 {

//do something else

}

for i in 0..<4 {

//do another thing

}

**Switch**:

switch someVariable {

case 1: "Case 1 was selected"

case 2: "Case 2 was selected"

default: "Default Case"

}

# Create an 8 Ball Magic App:

**Steps**:

1. Create or download Images for Background, Logo, Yes/No/Dont Know and Ask a Question Images
2. Create app and add images
3. Create UI and add UI Image for 8 Ball, Create 2 buttons one for reset and another for find Answer
4. Add Shake gesture
5. Refactor Code.

# Create a Card Game:

**Steps**:

* Download Images for card game from <https://github.com/hayeah/playing-cards-assets>
* Create Logo and Background Image
* Add UI on the Storyboard and add outlets and actions

# BMI Index Calculator:

BMI Formula = Mass (kg) / height^2 (meters)

* If BMI is greater than 30 print obese
* If BMI is between 30 and 25 print overweight
* BMI is between 18.5 - 25 print normal weight
* BMI less than 18.5 print underweight