UNIVERSITI TUNKU ABDUL RAHMAN

ASSIGNMENT 1 (10%)

**UECS3263 iOS APPLICATION DEVELOPMENT**

BACHELOR OF SCIENCE (HONOURS) SOFTWARE ENGINEERING

|  |  |
| --- | --- |
| Name (as stated in Student Card) | Student ID |
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| Programme | Submission Date |
| BACHELOR OF SCIENCE (HONS) SOFWARE EIGNEERING | 30 6 2021 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | | **Total Marks** | **Marks Given** |
| User Interface Design – CO2 (3 marks) | |  |  |
|  | Pictures | 1 |  |
|  | Musical Instrument Names | 1 |  |
|  | Supports user interaction | 1 |  |
| App Construction and Execution – CO3 (7 marks) | |  |  |
|  | Requirements implemented | 3 |  |
|  | Executes successfully | 1 |  |
|  | Originality | 1 |  |
|  | Code readability (e.g. meaningful names) | 1 |  |
|  | Documentation | 1 |  |
| Total | | 10 |  |

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# Application Screenshots

1. Before clicking the image

A picture containing text, music, piano

Description automatically generated

1. After clicking the image

A black and white piano

Description automatically generated with low confidence

1. After 0.5s, or 500ms, the next image will appear

A picture containing text, music, bowed instrument, viola

Description automatically generated

1. After clicking until the last image

A picture containing text, music

Description automatically generated

# Code Listing

//

//  ViewController.swift

//  project

//

//  Created by Guest User on 6/27/21.

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//

import UIKit

final *class* ViewController: UIViewController {

    override *func* viewDidLoad() {

        super.viewDidLoad()

        let height = self.view.frame.size.height - 250, width = self.view.frame.size.width;

        self.view.addSubview(self.createTopLabel(dimension: 175))

        let musicInstrumentName = ["piano", "cello", "guitar", "violin", "drum", "saxophone"]

        self.view.addSubview(MusicInstruments(musicInstrumentName: musicInstrumentName, height: *Int*(height), width: *Int*(width)))

    }

    private *func* createTopLabel(dimension: *Int*) -> UILabel {

        let label = UILabel(frame: CGRect(x: 30, y: 50, width: dimension \* 2, height: 21))

        label.textAlignment = .center

        label.text = "Click the Instruments to Reveal the Name"

        label.isHidden = false

        return label

    }

}

final *class* MusicInstruments: UIImageView {

    private let label: UILabel, endLabel: UILabel

    private let musicInstrumentName: *Array*<*String*>

    private var index: *Int*;

    private let maxIndex: *Int*;

*init*(musicInstrumentName: *Array*<*String*>, height: *Int*, width: *Int*) {

        self.musicInstrumentName = musicInstrumentName

        self.index = 0

        self.maxIndex = musicInstrumentName.count - 1

        let name = musicInstrumentName[0]

        self.label = UILabel(frame: CGRect(x: width / 2 - name.count \* 42, y: height + 5, width: width, height: 50))

        self.label.font = UIFont.systemFont(ofSize: CGFloat(integerLiteral: 25))

        self.label.textAlignment = .center

        self.label.text = name

        self.label.isHidden = true

        self.endLabel = UILabel(frame: CGRect(x: width / 2 - name.count \* 42, y: height + 60, width: width, height: 50))

        self.endLabel.font = UIFont.systemFont(ofSize: CGFloat(integerLiteral: 25))

        self.endLabel.textAlignment = .center

        self.endLabel.text = "You have reached the last instrument"

        self.endLabel.isHidden = true

        super.*init*(image: UIImage(named: "img/" + name + ".jpg"))

        //set the frame size of the UIImageView, with constant height & weight

        //x will have offset as well as y to set the position of the UIImageView

        self.frame = CGRect(x: 0, y: 90, width: width, height: height)

        //event listener for the UIImageView to display instrument name after clicking/tapping

        let singleTap = UITapGestureRecognizer(target: self, action: #selector(tapDetected))

        self.isUserInteractionEnabled = true

        self.addGestureRecognizer(singleTap)

        //add border to UIImageView for interface enhancement, otherwise, it's weird to see without border

        self.layer.borderWidth = 3

        self.layer.borderColor = UIColor.gray.cgColor

        self.addSubview(self.label)

        self.addSubview(self.endLabel)

    }

    required *init?*(coder *aDecoder*: NSCoder) {

        fatalError("init(coder:) has not been implemented")

    }

    @objc *func* tapDetected() {

        self.label.isHidden = false

        DispatchQueue.main.asyncAfter(deadline: .now() + 1) {

            if (self.index == self.maxIndex) {

                self.endLabel.isHidden = false

                return

            }

            self.index += 1

            let name = self.musicInstrumentName[self.index]

            self.label.isHidden = true

            self.label.text = name

            self.image = UIImage(named: "img/" + name + ".jpg")

        }

    }

}