

Northern Michigan University (Marquette Co, MI)

CS344-01-25F: iOS / iPhone Programming (Andrew A. Poe)
Practice Final Examination Page 1 / 3

Name: _____
Tuesday 9 December 2024 7:00 P.M. EST

Time: 110 minutes.

1. Write code for the Swift method `InParentheses`. `InParentheses` takes one string as a parameter and returns one string. The input string contains exactly one left parenthesis and exactly one right parenthesis with the left parenthesis occurring before the right parenthesis. Your method should return the string that is between the parentheses. For example, if the input string were “Be awesome (or not)!”, the string that should be returned is “or not”.

```
func InParentheses (_ s:String)->String {  
  
    var ret:String = ""  
    var app:Bool = false  
    for ch in s {  
        if ch=="(" {app = true}  
        else if ch==")" {app = false}  
        else if app {ret += ch}  
    }  
    return s  
}
```

2. Write code for the Swift method `Symmetric`. It takes a two-dimensional square array (meaning that the number of rows and the number of columns are equal) of integer and returns a boolean indicating whether the array is symmetric, meaning that if you drew a diagonal line, from the upper left to the lower right, that diagonal would be a “mirror” for the upper right and lower left triangles. For example,

1	5	9	3
5	2	12	0
9	12	83	6
3	0	6	9

is symmetric. See how that line cutting through 1, 2, 83, 9 reflects the two 5's, 9's, 3's, 12's, 0's, 6's?

```
func Symmetric (_ M:[[Int]])->Bool {  
  
    for i in 0..M.length {  
        for j in 0..M.length {  
            if (M[i][j] != M[j][i]) return false  
        }  
    }  
    return true  
}
```

3. Write the methods in ViewController that display a button reading “NoNum” and two text fields. Clicking this button should remove all the digits from the text in the first textfield and put the result into the second text field.. For example, if the first text field contained the text “C3PO R2D2”, clicking the “NoNum” button would cause the second text field to read “CP RD”. (The first text field should remain unchanged). The button, the button's action, and the text fields should all be created in code. Nothing should be created in the storyboard at all.

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```
override func viewDidLoad() {
    super.viewDidLoad()
    tf1 = UITextField()
    tf1!.frame = CGRect (x:100 , y:100, width: 250, height: 50)
    tf1!.text = ""
    view!.addSubview (tf1!)
    tf2 = UITextField()
    tf2!.frame = CGRect (x:100 , y:200, width: 250, height: 50)
    tf2!.text = ""
    view!.addSubview (tf2!)
    butt = UIButton ()
    butt!.frame = CGRect (x:100 , y:300, width: 250, height: 50)
    butt!.setTitle ("NoNum",for:UIControl.State.normal)
    butt!.addTarget(self, action: #selector(Shrink), for:
    UIControl.Event.touchUpInside)
    view!.addSubview (butt!)
}

@objc func NoNum () {

    var stuff:String = tf1!.text!
    var newstuff:String = ""
    for ch in stuff {
        if (ch < "0" || ch > "9") {newstuff += ch}
    }
    tf2!.text = newstuff
}
}
```

4. Write the following TableView methods to display a table with 100 sections. The first section should have one row: "1". The second should four rows: "1","2","3","4". The third section should have nine rows, the fourth should have sixteen rows, and so forth. The first section should be labeled "1 squared", the second "2 squared," and so forth.

```
func numberOfSections(in tableView: UITableView) -> Int
{return 100}

func tableView(_ tableView: UITableView, numberOfRowsInSection section:
Int) -> Int

{return (section+1)*(section+1)}

func tableView(_ tableView: UITableView, cellForRowAt indexPath:
IndexPath) -> UITableViewCell

    {let CellIdentifier = "stuff"
    let cell = tableView.dequeueReusableCell(withIdentifier:
CellIdentifier, for: indexPath)
    cell.textLabel!.text = "\(1+indexPath.row)"
    return cell
}
```

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```
func tableView(_ tableView: UITableView, titleForHeaderInSection section: Int) -> String?
```

```
{return ("\"(1+section) squared\"")}
```

5. Write Swift code that uses an sqlite database with a table called Clothing containing fields Item and Manufacturer. Your code should delete anything made by Victoria's Secret AND swimsuits made by KMart and by Thongs-R-Us.

```
sqlite3_prepare_v2 (db,"DELETE FROM Clothing WHERE Manufacturer =  
\"Victoria's Secret\" OR Item = 'Swimsuit' AND (Manufacturer = 'KMart' OR  
Manufacturer = 'Thongs-R-Us')",-1,&stmt,nil)  
while sqlite3_step (stmt)==SQLITE_ROW {  
}  
sqlite3_reset(stmt)  
sqlite3_finalize(stmt)
```

6. https://en.wikipedia.org/wiki/article_name is the web link for Wikipedia.

In Swift, write code for a TabBarController. The First View Controller contains a textfield and a button; the second contains a web kit view. Write the viewDidLoad method for this view controller, assuming the textfield and button are properly connected in the storyboard.

The user will type in an article name into the text field on the first view controller, and submit by clicking the button. (You may assume the button is connected to an appropriate action in the storyboard. You have to write the action method, though.)

The second view should switch automatically to become the active view showing the results of the wikipedia query. You will have to replace all spaces in the text field with underscores for this to work.

```
func viewDidLoad () {  
  
    svc = tabBarController!.viewControllers![1] as! SecondViewController  
    _ = svc!.view  
}  
  
@IBAction func play () {  
  
    var ss = "https://en.wikipedia.org/wiki/"  
    let art = tf!.text!  
    for ch in art {  
        if ch==" " {ss += "_"}  
        else {ss += ch}  
    }  
    let url = URL(string:ss)  
    let requestObj = URLRequest (url:url!)  
    svc!.wv!.load (requestObj)  
    tabBarController!.selectedIndex = 1  
}
```