Department of Computer Science and Engineering

Sub: iOS application development using swift

Assignment No 1

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1. Declare a constant named maxSpeed with a value of 120 and a variable currentSpeed with an initial value of 60. Then, modify the value of currentSpeed to 100. What will happen if you try to modify maxSpeed after it's initialized?

main.swift Share Run

```swift
let maxSpeed = 120
var currentSpeed = 60
print("Current Speed before changing: \(currentSpeed)")
currentSpeed = 100
print("Current Speed after changing: \(currentSpeed)")
// maxSpeed = 200 // This will throw error

```

Output Clear

```
Current Speed before changing: 60
Current Speed after changing: 100

=== Code Execution Successful ===
```

main.swift Share Run

```swift
let maxSpeed = 120
var currentSpeed = 60
print("Current Speed before changing: \(currentSpeed)")
currentSpeed = 100
print("Current Speed after changing: \(currentSpeed)")
maxSpeed = 200 // This will throw error

```

```
Output                                                    Clear
ERROR!
/tmp/ROJzn9CspN/main.swift:6:1: error: cannot assign to value: 'maxSpeed' is
    a 'let' constant
maxSpeed = 200 // This will throw error
^~~~~~~~
/tmp/ROJzn9CspN/main.swift:1:1: note: change 'let' to 'var' to make it
    mutable
let maxSpeed = 120
^~~
var

=== Code Exited With Errors ===
```

If we modify the maxSpeed i.e. constant will throw error message because we cannot change the value of constants. The constants are immutable in nature.

2. Write code where a constant stores the value of a person's age and a variable stores their current score in a game. Demonstrate why one needs to be a constant and the other a variable.

```
main.swift                                          Share    Run
1  let age = 25
2  var currentScore = 0
3  print("Age: \(age)")
4  print("Initial Score: \(currentScore)")
5
6  currentScore += 10
7  print("Score after earning points: \(currentScore)")
```

```
Output                                                    Clear
Age: 25
Initial Score: 0
Score after earning points: 10

=== Code Execution Successful ===
```

Here we used constant for age because age not changes suddenly so we have taken it as constant and currentScore as variable because score can change in the game as we progress it may increase or decrease.

3. Declare a constant score of type Int and attempt to assign a String value to it. What happens? Fix the error.

main.swift

Share Run

```
1  let score : Int = "Suraj"
2  print(score)
3  // let score : Int = 100
4  // print(score)
```

Output Clear

```
ERROR!
/tmp/LO1M8VwM3M/main.swift:1:19: error: cannot convert value of type
    'String' to specified type 'Int'
let score : Int = "Suraj"
                  ^~~~~~~

=== Code Exited With Errors ===
```

So here we have created a constant score using let of type Int and assigned a String value which is “Suraj” but it will throw error message as we cannot assign the String value to Int variable because it cannot convert the value of type String to specified type ‘Int’.

main.swift

Share Run

```
1  // let score : Int = "Suraj"
2  // print(score)
3  let score : Int = 100
4  print(score)
```

Output Clear

```
100

=== Code Execution Successful ===
```

To fix this error we need to assign the appropriate Integer value to that Int variable or constant whatever it is.

4. Declare a variable greeting and initialize it with the string "Hello, world!". What type will Swift infer for this variable? Print the type using type(of:).

main.swift Share Run

```
1  var greeting = "Hello, world!"
2  print(type(of: greeting))
```

Output Clear

```
String

=== Code Execution Successful ===
```

5. Declare a variable productPrice with type annotation Double and initialize it with the value 49.99.

main.swift Share Run

```
1  var productPrice : Double = 49.99
2  print(productPrice)
```

Output Clear

```
49.99

=== Code Execution Successful ===
```

6. Write a program that uses a switch statement to print the day of the week. Given a number between 1 and 7, print:
    1: "Monday"
    2: "Tuesday"
    3: "Wednesday"
    4: "Thursday"
    5: "Friday"
    6: "Saturday"
    7: "Sunday"

main.swift

Share Run

```swift
let day = 1
switch day {
    case 1:
        print("Monday")
    case 2:
        print("Tuesday")
    case 3:
        print("Wednesday")
    case 4:
        print("Thursday")
    case 5:
        print("Friday")
    case 6:
        print("Saturday")
    case 7:
        print("Sunday")
    default:
        print("Invalid Day")
}
```

Output Clear

```
Monday

=== Code Execution Successful ===
```

7. Write a program that takes an age as input and prints the category the person falls into using a switch statement:
   0–12: "Child"
   13–19: "Teenager"
   20–64: "Adult"
   65 and above: "Senior"

main.swift

Share Run

```swift
print("Enter your age:")
if let input = readLine(), let age = Int(input){
    switch age{
        case 0...12:
            print("Child")
        case 13...19:
            print("Teenager")
        case 20...64:
            print("Adult")
        case 65...:
            print("Senior")
        default:
            print("Invalid age")
    }
} else{
     print("Please enter a valid age")
}

```

Output Clear

```
Enter your age:
20
Adult

=== Code Execution Successful ===
```

8. Write a program that checks the current temperature. If the temperature is below 0°C, print "Freezing". If it's between 0°C and 20°C, print "Cold". If it's above 20°C, print "Warm".

main.swift

Share Run

```swift
print("Enter the current temperature in Celsius:")
if let input = readLine(), let temperature = Int(input){
        if temperature < 0{
            print("Freezing")
        } else if temperature <= 20{
            print("Cold")
        } else{
            print("Warm")
        }
} else{
    print("Please enter a valid Temperature")
}
```

Output Clear

```
Enter the current temperature in Celsius:
30
Warm

=== Code Execution Successful ===
```

9. Write a program that checks if a person is eligible for a loan. The person is eligible if:
    - They are at least 21 years old.
    - They have a credit score of 700 or higher.
    - If both conditions are true, print "Eligible for loan", otherwise print "Not eligible for loan".

main.swift

Share Run

```swift
print("Enter your age:")
if let ageInput = readLine(), let age = Int(ageInput) {
    print("Enter your credit score:")
    if let creditScoreInput = readLine(), let creditScore = Int
        (creditScoreInput) {
        if age >= 21 && creditScore >= 700 {
            print("Eligible for loan")
        } else {
            print("Not eligible for loan")
        }
    } else {
        print("Please enter a valid credit score.")
    }
} else {
    print("Please enter a valid age.")
}
```

Output Clear

```
Enter your age:
21
Enter your credit score:
701
Eligible for loan

=== Code Execution Successful ===
```

10. Write a program that uses a switch statement to determine the grade based on the score:
    - 90–100: "A"
    - 80–89: "B"
    - 70–79: "C"
    - 60–69: "D"
    - 0–59: "F"

    Ensure the switch statement covers all possible cases.

main.swift

Share Run

```swift
print("Enter your score:")
if let input = readLine(), let score = Int(input){
    switch score{
        case 90...100:
            print("A")
        case 80...89:
            print("B")
        case 70...79:
            print("C")
        case 60...69:
            print("D")
        case 0...59:
            print("F")
        default:
            print("Invalid score")
    }
}  else {
    print("Please enter valid score")
}
```

Output Clear

```
Enter your score:
95
A

=== Code Execution Successful ===
```

11. Write a program that checks if the entered password is correct. Declare a Boolean variable isPasswordCorrect:
    - If the value of isPasswordCorrect is true, print "Access granted".
    - If the value is false, print "Access denied".

main.swift

Share Run

```swift
var isPasswordCorrect: Bool = false
let password = "Suraj123"

print("Enter your password:")
if let enteredPassword = readLine(){
    if(password==enteredPassword){
        isPasswordCorrect = true
    }
} else {
    print("Please enter password")
}

if isPasswordCorrect{
    print("Access granted")
} else{
    print("Access denied")
}
```

Output Clear

```
Enter your password:
Suraj123
Access granted

=== Code Execution Successful ===
```

12. Write a program that suggests an activity based on whether it's a weekend and if it's raining:
    - Use isWeekend and isRaining as boolean variables.
    - If it's a weekend and it's not raining, print "Go hiking".
    - If it's a weekend and it's raining, print "Watch a movie".
    - If it's a weekday, print "Go to work".

main.swift

Share Run

```swift
var isWeekend = true
var isRaining = true
var activity = ""
if (isWeekend && !isRaining) {
    activity = "Go hiking"
} else if (isWeekend && isRaining) {
    activity = "Watch a movie"
} else {
    activity = "Go to work"
}

print(activity)
```

Output Clear

```
Watch a movie

=== Code Execution Successful ===
```

13. Write a program that uses the ternary operator to evaluate a student's grade:
    - If the grade is 60 or higher, print "Passed". Otherwise, print "Failed".
    - Use the ternary operator to check the grade and assign the result to a variable.

main.swift

Share Run

```swift
print("Enter your grade:")
if let input = readLine(), let grade = Int(input) {
    let result = grade >= 60 ? "Passed" : "Failed"
    print(result)
} else {
    print("Invalid input")
}

```

Output Clear

```
Enter your grade:
60
Passed

=== Code Execution Successful ===
```

14. Declare a name constant and assign your name as a string literal with proper capitalization. Then declare an age constant and give it your current age as an Int.

    Write an if-else statement that checks to see if name is in capitals, If yes Then print the following phrase using string interpolation: My name is and after my next birthday I will be years old. Insert name where indicated, and insert a mathematical expression that evaluates to your current age plus one where indicated.

main.swift

Share Run

```swift
let name = "SURAJ UPADHYE"
let age = 20
if name == name.uppercased() {
    print("My name is \(name) and after my next birthday I will be \
        (age + 1) years old.")
} else {
    print("The name is not in all capitals.")
}
```

Output Clear

```
My name is SURAJ UPADHYE and after my next birthday I will be 21 years old.

=== Code Execution Successful ===
```

15. Imagine you are looking through a list of names to find any that end in Jr; Write an if statement below that will check if "junior" has the suffix;Jr If it does, print We found a second generation name;

let junior =Cal Ripken Jr;

main.swift

Share Run

```swift
let junior = "Cal Ripken Jr"

if junior.hasSuffix("Jr") {
    print("We found a second generation name")
} else {
    print("No second generation name found")
}

```

Output Clear

```
We found a second generation name

=== Code Execution Successful ===
```

****