Week 04-05 ( Mobile Application Development using Swift)

*Note: No submission required. It does not carry any weight.*

Programming Exercises:

Following exercises are based on the following topics:

1. Classes and Objects
2. Stored Properties
3. Property Observers
4. Computed Properties
5. Initializers
6. Convenience Initializers
7. Failable Initializers
8. Functions
9. Extensions

Exercise #1:

Create a class – **CommissionEmployee** ( CommissionEmployee.swift) as per the following requirements:

1. It should have stored properties: employee id, name, commission rate and gross monthly sales in dollars, made by the employee. Choose appropriate data types for the above properties. You need to add validations so that all the above values should not be negative and stay in appropriate range as per requirements.
2. Minimum commission rate is 1.00 % and maximum is 2.00 %
3. Class should an initializer which initializes all these properties.
4. Class should have two convenience initializers. First one for initializing employee id and name and second for initializing employee id, name and commission rate
5. You need to add property observer for commission rate
6. Getter for the stored property – employee id should be private
7. Add a computed property – **description** which returns a string of stored properties values, used to display all the object’s data values
8. Add a function – CalculateCommission( ) -> Double { } for calculating the commission earned by the employee ( hint formula: grossSales \* commissionRate /100 )

Exercise #2:

Create a class – **BasePlusCommissionEmployee** ( BasePlusCommissionEmployee.swift) as per the following requirements:

1. It should have stored properties: employee id, name, base salary, commission rate and gross monthly sales in dollars, made by the employee. Choose appropriate data types for the above properties. You need to add validations so that all the above values should not be negative and stay in appropriate range as per requirements.
2. Minimum commission rate is 1.00 % and maximum is 2.00 %
3. Class should an initializer which initializes all these properties.
4. Class should have two convenience initializers. First one for initializing employee id and name and base salary, second for initializing employee id, name, base salary and commission rate.
5. You need to add property observer for commission rate
6. Getter for the stored property – employee id and commission rate should be private
7. Add a computed property – **description** which returns a string of stored properties values, used to display all the object’s data values
8. Add a function – CalculateCommission( ) -> Double { } for calculating the commission earned by the employee ( hint formula: baseSalary + grossSales \* commissionRate /100 )

Exercise #3:

Create a class – **HourlyEmployee** ( HourlyEmployee.swift) as per the following requirements:

1. It should have stored properties: employee id, name, hourly rate and numbers of hours worked in a given week. Choose appropriate data types for the above properties. You need to add validations so that all the above values should not be negative and stay in appropriate range as per requirements.
2. Minimum hourly rate is $15.00
3. Maximum value for number of hours worked is 72
4. Class should an initializer which initializes all these properties.
5. Class should have two convenience initializers. First one for initializing employee id and name and second for initializing employee id, name and hourly rate
6. You need to add property observer for hourly rate and numbers of hours worked
7. Getter for the stored property – employee id and hourly rate should be private
8. Add a computed property – **description** which returns a string of stored properties values, used to display all the object’s data values
9. Add a function – **Earnings( )** -> Double { } for calculating the salary which calculates the salary as per following business requirements:
   1. If number of hours worked is more then 40 then employee should be paid 1.5 times the standard rate.