JOBSHEET 5

Selection Part 1

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Class
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Labs Activity

Question! (Experiment 1)

1. Modify the above selection statement (if-else) by using Ternary Operator! We know that Ternary Operator could be used as a selection statement as well.
2. Compile, run and observe the result!
3. Commit and push the changes into your repository!
4. Finally, please explain why the output of the program before and after the changes has a similar output.

Answer!

1.
```java
import java.util.Scanner;

public class Selection124 {
    Run | Debug
    public static void main(String[] args) {
        Scanner input24 = new Scanner(System.in);
        System.out.print(s:"Input a number = ");
        int number = input24.nextInt();

        // Ternary Operator
        // syntax (condition) ? (statement for true) : (statement for false)
        String result = (number %2==0) ? " is an even number!" : " is an odd number!";
        System.out.println(number + result);

    //    if(number %2 == 0){
    //        System.out.println(number + " is an even number!");
    //    } else {
    //        System.out.println(number + " is an odd number!");
    //    }
    }
}
```

4. The similarity in output is because both approaches (if-else and ternary operator) are functionally equivalent, they just represent different ways of achieving the same logic.

Question! (Experiment 2)

1. Modify the above program so that it now can convert from numerical grade into letter grade, based on the following rule! Commit and push the changes into your repository!
2. After the above modification, how many conditions are there and what type of operator are used?

Answer!

1.
```java
public static void main(String[] args) {
    Scanner input24 = new Scanner(System.in);
    System.out.print("Final Exam  : ");
    float finalExam = input24.nextFloat();
    System.out.print("Mid Exam    : ");
    float midExam = input24.nextFloat();
    System.out.print("Quiz        : ");
    float quiz = input24.nextFloat();
    System.out.print("Assignment  : ");
    float assignment = input24.nextFloat();
    float finalGrade = (finalExam*0.4F) + (midExam*0.3F) + (quiz*0.1F) + (assignment*0.2F);
    String message = finalGrade < 65 ? "Retake" : "Pass";
    System.out.println("Final Grade = " + finalGrade + " and the decision is " + message);
    if(finalGrade>80 && finalGrade<=100){
        System.out.println("The final grade is A");
    } else if(finalGrade>73 && finalGrade<=80){
        System.out.println("The final grade is B+");
    } else if(finalGrade>65 && finalGrade<=73){
        System.out.println("The final grade is B");
    } else if(finalGrade>60 && finalGrade<=65){
        System.out.println("The final grade is C+");
    } else if(finalGrade>50 && finalGrade<=60){
        System.out.println("The final grade is C");
    } else if(finalGrade>39 && finalGrade<=50){
        System.out.println("The final grade is D");
    } else if(finalGrade<=39 ){
        System.out.println("The final grade is E");
    } else {
        System.out.println("Error");
```
2. There are 8 conditions with a combination of the ternary conditional operator and if-else statements to evaluate different aspects of the final grade calculation and grading.

Question! (Experiment 3)

1. What is the use of break and default statement?
2. Modify the above program by deleting break statement in the first case. Run the program, observe the result, and explain what it is the effect if there is no break in case block!
3. Commit and push the changes into your repository.
4. Please explain the function of the following statement

   operator = sc.next().charAt(0);

Answer!

1. The break statement is used to control the flow within a switch statement, while the default case provides a default action to be taken when none of the specified case values matches the expression.

2. If deleting the break statement in the first case block of the switch statement, the program will exhibit a behavior known as "fall-through." This means that after the code in the first case block is executed, the program will continue to execute the code in subsequent case blocks until it encounters a break statement or reaches the end of the switch statement.

4. The statement is used to read a character input from the user using a Scanner object (sc) and then assign the first character of the input string to the variable operator.

Assignment

Time: 160 minutes

Create a program based on the flowchart that was already created in Assignment 5 in the Slide of Selection part 1! Commit and push the code results to your project repository!

Note: The assignment may only apply the material covered from Week 1 to Week 5.

Answer!

```
switch(payMethod) {
  case "BNI" :
      System.out.print(s:"Input BNI account number(009): ");
      int BNI = sc.nextInt();
      System.out.println(x:"Salary is currently being processed for transfer to the account...");
      break;
  case "BRI":
      System.out.print(s:"Input BRI account number(002): ");
      int BRI = sc.nextInt();
      System.out.println(x:"Salary is currently being processed for transfer to the account...");
      break;
  case "Bank Jatim":
      System.out.print(s:"Input Bank Jatim account number(114): ");
      int bankJatim = sc.nextInt();
      System.out.println(x:"Salary is currently being processed for transfer to the account...");
      break;
  case "Mandiri":
      System.out.print(s:"Input Mandiri account number(008): ");
      int mandiri = sc.nextInt();
      System.out.println(x:"Salary is currently being processed for transfer to the account...");
      break;
  case "BCA":
      System.out.print(s:"Input BCA account number(014): ");
      int BCA = sc.nextInt();
      System.out.println(x:"Salary is currently being processed for transfer to the account...");
      break;
  default:
      System.out.println(x:"Input invalid");
```