Republic of the Philippines
Department of Education
REGION III
SCHOOLS DIVISION OFFICE OF NUEVA ECIJA

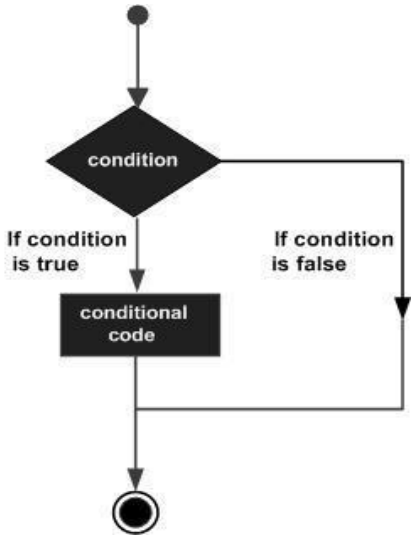
LEARNING ACTIVITY SHEET
SPECIAL PROGRAM IN ICT 9
BASIC PROGRAMMING 9
Third Quarter, Week 4

DECISION CONTROL STRUCTURES

Background Information for Learners

Decision making structures have one or more conditions to be evaluated or tested by the program, along with a statement or statements that are to be executed if the condition is determined to be true, and optionally, other statements to be executed if the condition is determined to be false.

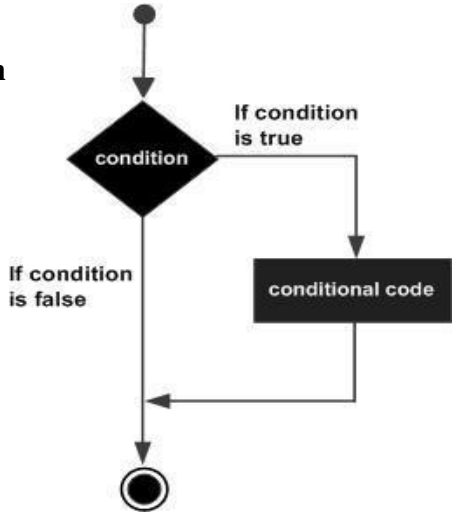
Following is the general form of a typical decision making structure found in most of the programming languages



Decision Control Structure	Description
if statement	An if statement consists of a boolean expression followed by one or more statements.
if… else statement	An if statement can be followed by an optional else statement, which executes when the boolean expression is false
nested if statement	You can use one if or else if statement inside another if or else if statement(s).
switch statement	A switch statement allows a variable to be tested for equality against a list of values.

IF STATEMENT

Flow Diagram



Sample Code:

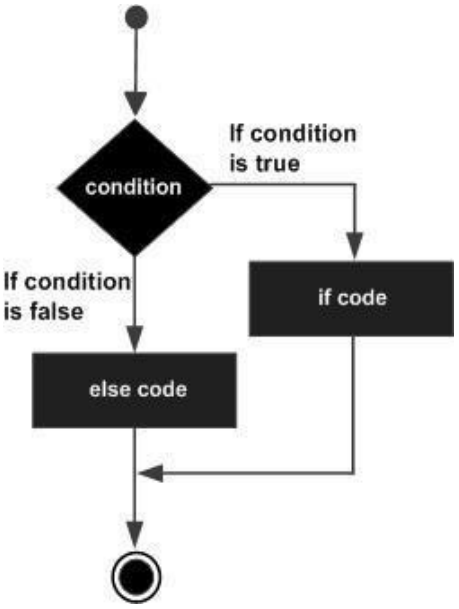
```
public class Test {

   public static void main(String args[]) {
int age = 18;

      if( age >= 18 ) {
         System.out.print("Legal age");
      }
   }
}
```

Output:

Legal age

IF.. ELSE STATEMENT

Flow Diagram Sample code:



```
public class Test1
{
   public static void main(String args[])
   {
     int age = 15;
       {System.out.print("Joan G. Suarez");
     if( age >= 18 )
     {
       System.out.print("Legal age");
     }
     else
     {
       System.out.print("Still a minor");
        }
     }
    }
}
```

Output:

Still a minor

IF.. ELSE IF.. ELSE STATEMENT

An if statement can be followed by an optional else if...else statement, which is very useful to test various conditions using single if...else if statement.

When using if, else if, else statements there are a few points to keep in mind.

- An if can have zero or one else's and it must come after any else if's.
- An if can have zero to many else if's and they must come before the else.
- Once an else if succeeds, none of the remaining else if's or else's will be tested.

Sample Code:

The code below will determine the grade based on the following:

Descriptors	**Grading Rate**
Outstanding	90-100
Very Satisfactory	85-89
Satisfactory	80-84
Fairly Satisfactory	75-79
Did Not Meet Expectation	Below 75

```
public class MyGrade
{
   public static void main(String args[])
     {
       int grade = 95;

       {System.out.print("Joan G. Suarez");
         if( grade >= 90 )
           System.out.print("Outstanding");
         else if ( grade >= 85 )
           System.out.print("Very Satisfactory");
         else if ( grade >= 80 )
           System.out.print("Satisfactory");
         else if ( grade >= 75 )
           System.out.print("Fairly Satisfactory");
         else
           System.out.print("Did Not Meet Expectation");
        }
     }
}
```

Output: Joan G. SuarezOutstanding

NESTED IF STATEMENT

Sample Code:

```
public class Test2
{
  public static void main(String args[])
  {
    int x = 30;
    int y = 10;

    {System.out.print("Joan G. Suarez");
     if( x == 30 )
     {
      if( y == 10 )
      {
        System.out.print("X = 30 and Y = 10");
      }
     }
    }
  }
}
```

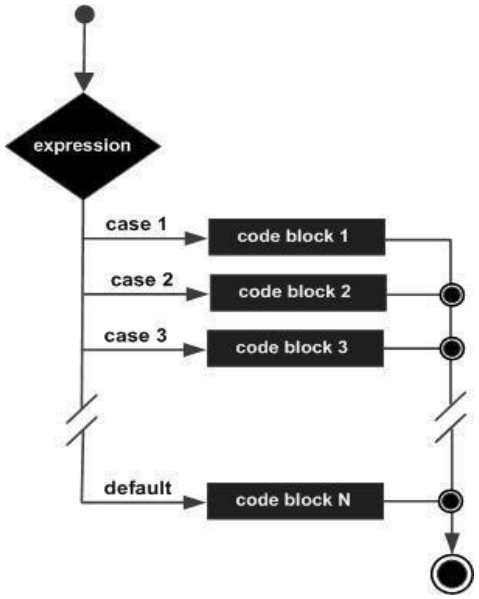
Output:

X = 30 and Y = 10

SWITCH STATEMENT

The following rules apply to a switch statement:

- The variable used in a switch statement can only be integers, convertable integers (byte, short, char), strings and enums.
- You can have any number of case statements within a switch. Each case is followed by the value to be compared to and a colon.
- The value for a case must be the same data type as the variable in the switch and it must be a constant or a literal.
- When the variable being switched on is equal to a case, the statements following that case will execute until a break statement is reached.
- When a break statement is reached, the switch terminates, and the flow of control jumps to the next line following the switch statement.
- Not every case needs to contain a break. If no break appears, the flow of control will fall through to subsequent cases until a break is reached.
- A switch statement can have an optional default case, which must appear at the end of the switch. The default case can be used for performing a task when none of the cases is true. No break is needed in the default case.



Sample Code:

```
// Java Program to check the size
// using the switch...case statement
 class Main {   public static void main(String[] args) {
     int number = 44;
     String size;
     // switch statement to check size
 switch (number) {
```

```
        case 29:
 size = "Small";
 break;
        case 42:
 size = "Medium";
 break;
      // match the value of week
 case 44:
 size = "Large";
 break;
 case 48:
 size = "Extra Large";
 break;
              default:
size = "Unknown";
break;
    }
    System.out.println("Size: " + size);
  }
}
```

Output:

Size: Large

Learning Competency with Code

Enumerate the different type of decision control structure.
Create a source code on the different type of decision control structure.

Exercises/Activities:

Attach the screenshot of your codes and result in our Google Classroom

Direction: Create a source code on the following decision control structures. 20 points each code.

1. Using an if else statement, write a source code that will determine if the student's grade is passed or failed. You can use any variable you want.
2. Using if-else if-else statement, write a source code that will determine the academic award of the student. Use the following range to determine the output of your code.

Average	Academic Award
98-100	With Highest Honor
95-97	With High Honor
90-94	With Honor
89 and below	None

Reflection: Write your answers in a one whole sheet of paper.

Explain each decision control structure being given on this lesson.

References for Learners

https://www.programiz.com/java-programming/switch-statement

https://www.tutorialspoint.com/java/java_decision_making.htm

https://www.tutorialspoint.com/java/if_statement_in_java.htm

https://www.tutorialspoint.com/java/if_else_statement_in_java.htm

https://www.tutorialspoint.com/java/switch_statement_in_java.htm

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