**Introduction**

Condition; if then else and loops; for loop, do-while loop and while loop and data branching; switch was learnt.

If then else

Syntax: if (test condition){

Statements or actions to perform if the test is positive.

}

Else{

Statement or action to perform if the test is negative.

}

For loop

Syntax: for (initialization; Boolean expression; update){

Statements or actions to perform.

}

While loop

Syntax: while(test condition){

Statements or actions to perform.

}

Do-while loop

Syntax: do{

Actions to perform.

}while(test condition)

Switch

Syntax: switch(x){

Case 1: Statements; break;

Case 2: Statements; break;

}

**Exercise 1**

//importing Scanner class

import java.util.Scanner;

//declaring class as E1

class E1{

//declaring loop method

public void loop(){

//creating object in scanner

Scanner scan = new Scanner(System.in);

//declaring variable

String c;

//looping statement

do{

System.out.println(" ");

System.out.println("Hey!!!");

System.out.println(" ");

System.out.println("Welcome To My Print Screen.");

System.out.println(" ");

System.out.println("Are You Enjoying Here???");

System.out.println(" ");

System.out.println("I Want To Tell You To Enjoy Your Life To Fullest....");

System.out.println(" ");

System.out.println("Do you want to continue? (Y / N) :");

System.out.println(" ");

//declarig loop inside a loop

do{

c = scan.nextLine();

//declaring condition

if((c.equalsIgnoreCase("n")) || c.equalsIgnoreCase("y")){

break;

}

else{

System.out.println(" ");

System.out.print("Invalid character !!!");

System.out.println(" Please re-enter the character again.");

System.out.println(" ");

}

}while(!(c.equalsIgnoreCase("y")) || (c.equalsIgnoreCase("n")));

} while (c.equalsIgnoreCase("y")); //closing statement with looping value

scan.close();

System.out.println(" ");

System.out.println("See You!");

System.out.println(" ");

}

//declaring main method

public static void main(String[] args){

//object is created and initialized

E1 e = new E1();

//invoking loop method

e.loop();

}

}

Scanner class is imported.

Class is declared as E1.

Method loop is declared.

New scan object is created in scanner.

Variable is declared outside the loop.

Looping statement is written.

The statements are written.

Nested loop is created.

Data is read from console.

The entered value is compared with “y” or “n”.

If the condition is satisfied the nested loop is terminated.

Else the nested loop is repeated.

The checking condition for the nested loop is given.

The checking for the loop is given.

Scan sequence is closed.

Main method is declared.

New object is created and initialized.

Loop method is invoked.

**Exercise 2**

import java.util.Scanner; // ...

/\*\*

\* Write a description of class Rectangle here.

\* .

\*

\*/

public class Rectangle

{

double length; // declaring variable length

double width; // declaring variable width

/\*

\* method rectangle is declaared

\* global vairables length and width are assigned to the value of local variable l and w reaspectic=vely

\*/

public Rectangle(double l, double w)

{

length = l; // lenght is assigned to value of l

width = w; // width is assigned to value of w

}

/\*

\* method getlength is declared.

\* this method returns the value of length to double getlength

\*/

public double getLength() {

return length; // returns the value of length

}

/\*

\* method getwidth is declared

\* This method returns the value of width to double getwidth

\*/

public double getWidth() {

return width; // returns the value of width

}

/\*

\* method is square is declared

\* This method returns a boolean value to the boolean issquare

\*/

public boolean isSquare()

{

return (length == width); // returns boolean value

}

/\*

\* method getarea is declared

\* This method returns the value of area to double getarea

\*/

public double getArea() {

double area = length \* width; // mathematical caculation

return area; // reaturns the value to getarea

}

/\*

\* method getperimeter is declared

\* This method returns the calculated value to double getperimeter

\*/

public double getPerimeter() {

return 2 \* (length + width); // reuturns the calculated result to getperimeter

}

/\*

\* main method is declared

\* The main method is the method that is executed during excution

\* this method calls the required method during the execution of the program

\*/

public static void main(String[] args) {

Scanner keyboard = new Scanner(System.in); // new object is created in scanner

String cont = "yes"; // value yes assigned to variable cont

/\*

\* The following do-while block loops the program while user enters yes and stop the program when user enters no

\*/

while (cont.equals("yes")){ // checks the value of cont and decides whether to continue the loop or not

/\*

\* The next 4 lines reads the data from console that user entered

\*/

System.out.print("Please enter the rectangle length: ");

double len = keyboard.nextDouble(); // reads the data from console

System.out.print("Please enter the rectangle width: ");

double wid = keyboard.nextDouble(); // reads the data from console

/\*

\* The if statement and the next 4 lines checks the entered value are valid and the results obtained from the different calculation

\*/

if ((len <= 0) || (wid <= 0)) { // Checks if the values of length and wiidth are less than or equal to 0

System.out.println("Sorry you entered a negative value. Please try again.\n");

continue; // if the condition is found true the loop is re-started

}

Rectangle myRectangle = new Rectangle(len, wid); // new object is created and initialized

// prints the result after calling getlength method

System.out.println("The length of the rectangle is " + myRectangle.getLength());

// prints the result after calling getwidth method

System.out.println("The width of the rectangle is " + myRectangle.getWidth());

// prints the result after calling getarea method

System.out.println("The area of the rectangle is " + myRectangle.getArea());

// prints the result after calling getperimeter method

System.out.println("The perimeter of the rectangle is " + myRectangle.getPerimeter());

boolean isSquare = myRectangle.isSquare(); // vaiable issquared is assigned to the value obtained after calling issquare function

/\*

\* The following if-else statement checks whether the rectangle is square or not

\*/

if (isSquare) { // checks whether the rectangle is square or not

System.out.println("The rectangle is a square."); // prints the line the rectangle is a square

}

else { // whether the rectangle is square or not

System.out.println("The rectangle is no square."); // prints the line the rectangle is no square

}

System.out.print("Do you want to continue [yes/no]? "); // prints the line so you want to continue?

cont = keyboard.next(); // data is read from the console and assigned to cont variable

System.out.println(""); // prints a space

}

System.out.println("Goodbye!"); // prints goodbye

}

}

Comments were added and the do-while loop was transformed into while loop. The program still ran as before cause the cont variable is already defined as “yes” before the loop was started.

**Exercise 3**

//importing scanner class

import java.util.Scanner;

//declaring class that prints the day according to the no. entered

class E3{

//declaring switchmethod num

public void switchMethod(int num){

switch(num){

case 1 : System.out.println(" ");

System.out.println("The day is Monday.");

System.out.println(" ");

break;

case 2 : System.out.println(" ");

System.out.println("The day is Tuesday.");

System.out.println(" ");

break;

case 3 : System.out.println(" ");

System.out.println("The day is Wednesday.");

System.out.println(" ");

break;

case 4 : System.out.println(" ");

System.out.println("The day is Thursday.");

System.out.println(" ");

break;

case 5 : System.out.println(" ");

System.out.println("The day is Friday.");

System.out.println(" ");

break;

case 6 : System.out.println(" ");

System.out.println("The day is Saturday.");

System.out.println(" ");

break;

case 7 : System.out.println(" ");

System.out.println("The day is Sunday.");

System.out.println(" ");

break;

}

}

//declaring main method

public static void main(String[] args) {

//declaing variable

int num;

//creating object in scanner

Scanner read = new Scanner(System.in);

//creating loop

do{

//reading data from console

System.out.println(" ");

System.out.println("Enter any number of the day : ");

System.out.println(" ");

num = read.nextInt();

if(num == 1 || num == 2 || num == 3 || num == 4 || num == 5 || num == 6 || num == 7){

break;

}

else{

System.out.println(" ");

System.out.println("Invalid number !!!");

}

}while(!(num == 1 || num == 2 || num == 3 || num == 4 || num == 5 || num == 6 || num == 7));

read.close();

//new object is created and initialized

E3 e = new E3();

//invoking switch method

e.switchMethod(num);

}

}

Scanner class is imported.

Class is declared as E3.

Method switchmethod is declared.

Switch is started.

Case 1 is declared.

Command to print “The day is Monday.” is written.

Case 2 is declared.

Command to print “The day is Tuesday.” is written.

Case 3 is declared.

Command to print “The day is Wednesday.” is written.

Case 4 is declared.

Command to print “The day is Thursday.” is written.

Case 5 is declared.

Command to print “The day is Friday.” is written.

Case 6 is declared.

Command to print “The day is Saturday.” is written.

Case 7 is declared.

Command to print “The day is Sunday.” is written.

Main method is declared.

Variable num of integer data type is declared.

New object is created in scanner.

Do while loop is initialized.

Data is read from console.

The entered integer is checked if it equals to 1 to 7 or not.

If the condition is satisfied the loop is terminated there.

Else the user is asked to re-enter the correct value.

The checking condition for the loop is given.

Read sequence is closed.

New object e is created and initialized.

Method switchmethod is invoked.

**Critical evaluation**

In exercise 1, the nested loop can be created in another method and can be called from the between the loops. The if-condition can also be created in another method and be called.

In exercise 3, the scanner object can be created in any other method and invoked during the execution. The do-loop can be created in another method and be invoked.

**Conclusion**

While doing this assignment, things learnt were, the uses of the if, if else and if else if condition, while loop, do-while loop, for loop and switch in a program.

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