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Table of Contents

Coin Dispenser.....3

Sum of Digits.....8

Body Mass Index (BMI) Calculator.....13

Rock-Paper-Scissors Game.....19

Temperature Converter.....27

Highest Scoring Student.....33

Math Tutor.....38

Restaurant Bill Calculator.....47

Coin Dispenser

Description:

This program will output the least number of coins needed for the change amount. The app first request that the user inputs an amount of change. The program then calculates the amount of change needed in quarters, dimes, nickels, and pennies.

Program Inputs: Change

Program Outputs: xx Quarters

xx Dimes

xx Nickels

xx Pennies

Coin Dispenser

Pseudo code:

Output: "Please input change: "

Input: change

quarters = change/25

Change = change % 25

dimes = change/10

Change = change % 10

nickels = change/5

Change = change % 5

pennies = change

Output: "The customer receives: "

Output: "Quarters: " + quarters

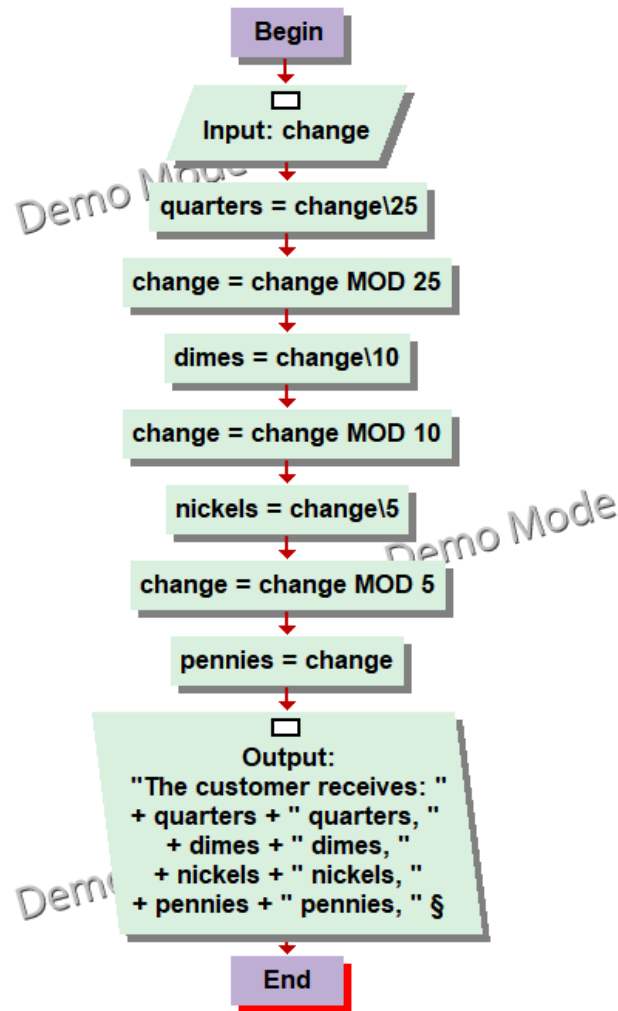
Output: "Dimes " + dimes

Output: "Nickels " + nickel

Output: "Pennies " + pennies

Coin Dispenser

Flow chart:



```

Please Input change: 43
The customer receives:
1 quarters
1 dimes
1 nickels
3 pennies

```

A terminal window with a teal background and white text. It shows the user inputting '43' for change. The program then outputs the breakdown: '1 quarters', '1 dimes', '1 nickels', and '3 pennies'.

Coin Dispenser

Java code:

```
import java.util.Scanner;

public class Lab3WorkClass {

    /* Yvan Ngah. Computer Science 1 Spring. 1.3 Correct Change.
    * This program will calculate the number of quarters,dimes,nickels,and pennies
    * when given an amount of change. This program will output the least amount of
    * coins needed for the change amount. */

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter change amount: ");

        int change = input.nextInt();

        int quarters, dimes, nickel, penny;

        if ((0 >= change) || (change > 100)) {
            System.out.println("Please enter an amount of change greater than 0 and less than 100"); }
        else {

            quarters = change / 25;
            change = change % 25;
            dimes = change / 10;
            change = change % 10;
            nickel = change / 5;
            change = change % 5;
            penny = change;

            System.out.println("Change amount: ");

            System.out.println("This is the needed amount of quarters: "+ quarters);
            System.out.println("This is the needed amount of dimes: "+ dimes);
            System.out.println("This is the needed amount of nickel: "+ nickel);
            System.out.println("This is the needed amount of penny: "+ penny);
            System.out.println("-----Program Complete-----");

        }

        input.close(); } }
```

Coin Dispenser

Java code outputs:

Please input change: 43

1 Quarters

2 Dimes

1 Nickels

3 Pennies

Sum Of Digits

Description:

This program first asks the user to input a three-digit number. The program then separates the individual digits of the user's number. Finally, the program then finds the sum of the combined individual values and displays this value as the output.

Program Inputs: Value

Program Outputs: Newsum xx

Sum Of Digits

Pseudo code:

Output: "Please enter a three-digit integer value: "

Input: Value

$\text{Value1and2} = \text{Value} / 10$

$\text{firstValue} = \text{Value1and2} / 10$

$\text{middleValue} = \text{Value1and2} \% 10$

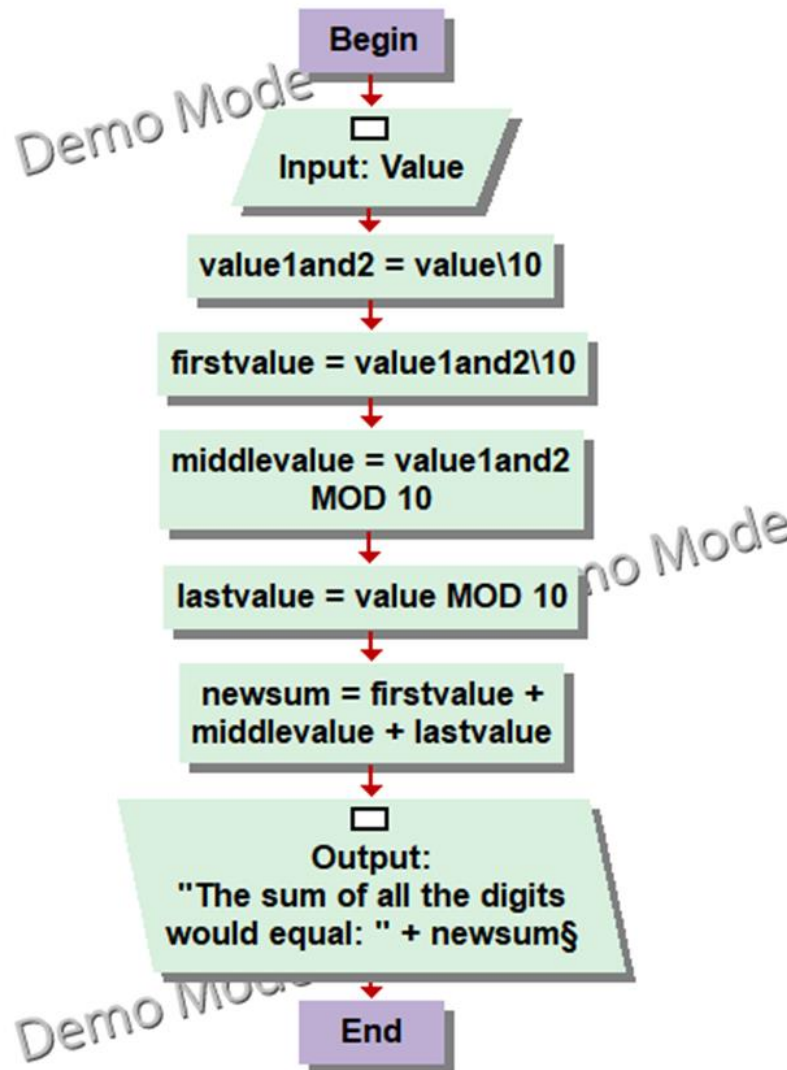
$\text{lastValue} = \text{Value} \% 10$

$\text{newsum} = \text{firstValue} + \text{middleValue} + \text{lastValue}$

Output: "The sum of all the digits would equal: " + newsum

Sum Of Digits

Flow chart:



Please enter a 3 digit integer value: 123
The sum of all the digits would equal: 6

Sum of Digits

Java code:

```
import java.util.Scanner;

public class lab2dot2class {

    /* Yvan Ngah
    * Computer Science 1 Spring. 2-2 Sum the digits in an integer
    * This program first asks the user to input a three-digit number. The program then separates the
    * Individual digits of the user's number. Finally, the program then finds the sum
    * of the combined individual values and displays this value as the output. */

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Please enter a three-digit integer value: ");

        int value = input.nextInt();

        int value1and2 = value / 10;

        int firstvalue = value1and2 / 10;

        int middlevalue = value1and2 % 10;

        int lastvalue = value % 10;

        int newsum = firstvalue + middlevalue + lastvalue;

        System.out.println("The sum of all the digits would equal: "+
newsum);

    }

}
```

Sum Of Digits

Java code outputs:

Please enter a three-digit integer value: 123

The sum of all the digits would equal: 6

Body Mass Index (BMI) Calculator

Description:

This program will calculate the Body Mass Index (BMI) of a person based on their weight and height. First, the program asks for the user's weight in pounds, height in feet, and height in inches. The BMI formula is then applied which outputs the users calculated BMI value and their current BMI status.

Program Inputs: Userweight

Userheightfeet

Userheightinch

Program Outputs: Calculated BMI xx

BMI Status xx

Body Mass Index (BMI) Calculator

Pseudo code:

Output: "Please enter your weight in pounds: "

Output: "Please enter your height in feet: "

Output: "Please enter your height in inches: "

Input: integer userweight

Input: integer userheightfeet

Input: userheightinch

$\text{newuserheight} = (\text{userheightfeet} * 12) + \text{userheightinch}$

$\text{newweight} = \text{userweight} * .45359237$

$\text{newheight} = \text{newuserheight} * .0254$

$\text{bmi} = \text{newweight} / \text{newheight}$

$\text{newbmi} = \text{bmi}$

Output: "Calculated BMI: " + newbmi

Output: "BMI Status: "

if (newbmi < 18.5)

 Output: "Underweight BMI"

else if (newbmi < 25)

 Output: "Normal BMI"

else if (newbmi < 30)

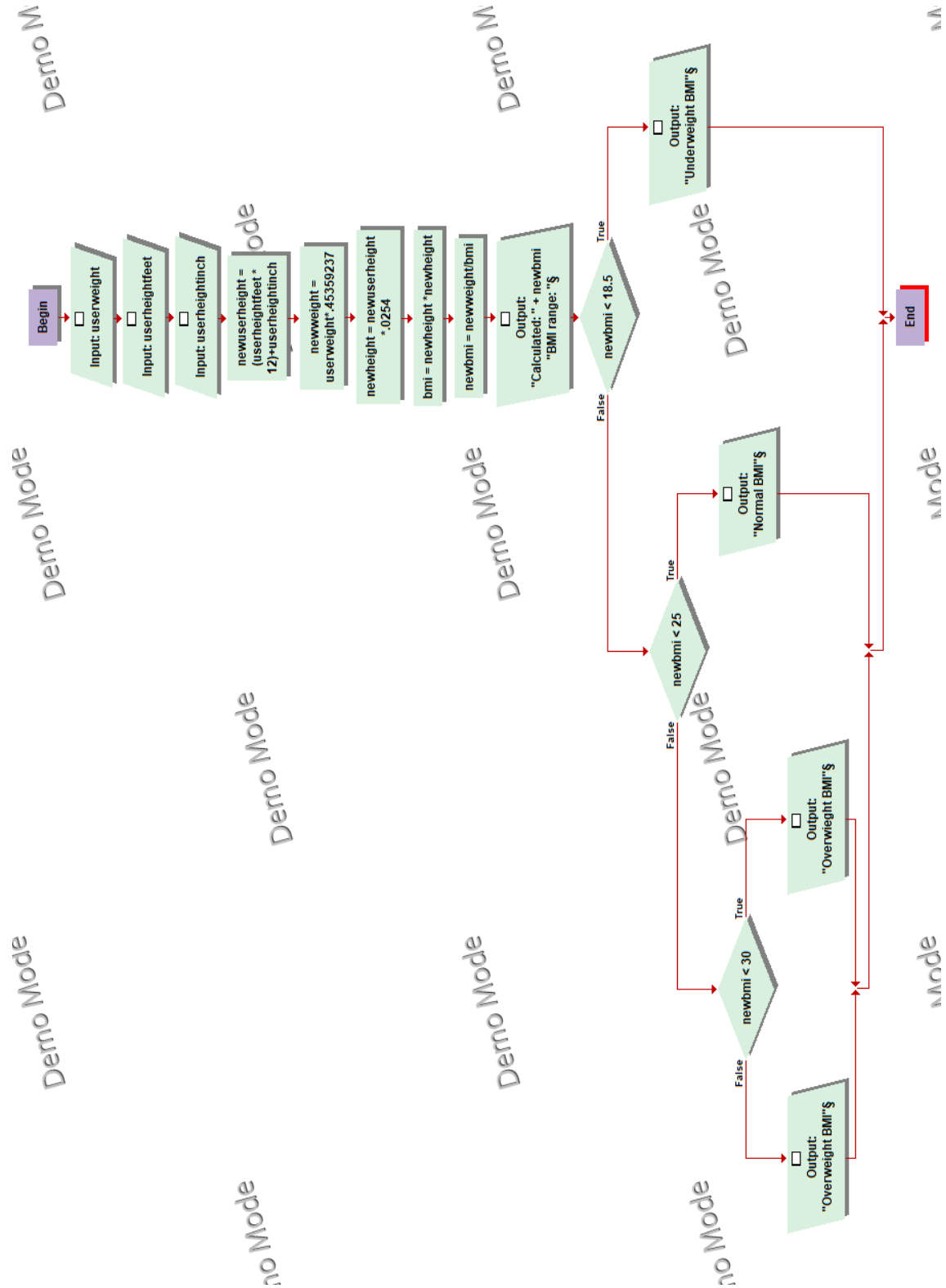
 Output: "Overweight BMI"

else

 Output: "Obese BMI"

Body Mass Index (BMI) Calculator

Flow chart:





```
Please enter your weight in pounds: 100
Please enter your height in feet: 6
Please enter your height in inches: 1
Calculated BMI: 13.193274153483944
BMI Status: Underweight BMI
```



```
Please enter your weight in pounds: 200
Please enter your height in feet: 6
Please enter your height in inches: 3
Calculated BMI: 24.99802949828122
BMI Status: Normal BMI
```



```
Please enter your weight in pounds: 220
Please enter your height in feet: 6
Please enter your height in inches: 1
Calculated BMI: 29.025203137664683
BMI Status: Overweight BMI
```



```
Please enter your weight in pounds: 500
Please enter your height in feet: 4
Please enter your height in inches: 3
Calculated BMI: 135.1537061974547
BMI Status: Obese BMI
```


Body Mass Index (BMI) Calculator

Java code:

```
import java.util.Scanner;

public class Lab3dot2class {

    /* Yvan Ngah. Computer Science 1 Spring. 3-3 Calculating the Body Mass Index (BMI)
    * This program will calculate the Body Mass Index (BMI) of a person based on
    * their weight and height. First, the program asks for the user's weight in
    * pounds, height in feet, and height in inches. The BMI formula is then applied
    * which outputs the users calculated BMI value and their current BMI status.. */

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.print("Please enter your weight in pounds: ");

        double userweight = input.nextDouble();

        System.out.print("Please enter your height in feet: ");

        double userheightfeet = input.nextDouble();

        System.out.print("Please enter your height in inches: ");

        double userheightinch = input.nextDouble();

        double newuserheight = (userheightfeet * 12) + userheightinch;

        double newweight = userweight * .45359237;

        double newheight = newuserheight * .0254;

        double bmi = newweight * newheight;

        double newbmi = newweight / bmi;

        System.out.println("Calculated BMI: "+ newbmi);

        System.out.println("BMI Status: ");

        if (newbmi < 18.5) {System.out.println("Underweight BMI");}

        else if (newbmi < 25) {    System.out.println("Normal BMI");}

        else if (newbmi < 30) {    System.out.println("Overweight BMI");}

        else {    System.out.println("Obese BMI");

            input.close(); }

    } }
```

Body Mass Index (BMI) Calculator

Code outputs:

Please enter your weight in pounds: 100

Please enter your height in feet: 6

Please enter your height in inches: 1

Calculated BMI: 13.193274153483944

BMI Status:

Underweight BMI

Please enter your weight in pounds: 200

Please enter your height in feet: 6

Please enter your height in inches: 3

Calculated BMI: 24.99802949828122

BMI Status:

Normal BMI

Please enter your weight in pounds: 220

Please enter your height in feet: 6

Please enter your height in inches: 1

Calculated BMI: 29.025203137664683

BMI Status:

Overweight BMI

Please enter your weight in pounds: 500

Please enter your height in feet: 4

Please enter your height in inches: 3

Calculated BMI: 135.1537061974547

BMI Status:

Obese BMI

Rock Paper Scissors Game

Description:

This program allows a user to play rock paper scissors with the computer. The program generates a random number from 0 to 2 then compares the value to the user input to determine if the user won or lost the game. The first player to get two times more points than their opponent wins the game.

Program Inputs: User

Program Outputs: xx usercount

xx computercount

Rock Paper Scissors Game

Pseudo code:

While (true)

Computer = (int)(Math.random()* 3)

Output: "Enter your selection: scissor (0), rock (1), paper (2): "

Output: "The computer is "

Switch(computer){

Case 0: "scissor"

Case 1: "rock"

Case 2: "paper" }

Output: " .You are "

Switch(user) {

Case 0: "scissor"

Case 1: "rock"

Case 2: "paper" }

If(computer == user)

Output: " too. It is a draw"

Else {

Userwin = (user == 0 && computer == 2) || (user == 1 && computer == 0) || (user == 2 && computer == 1)

If(userwin)

Output: " .You won."

Usercount++ }

Else {

Output: " .You lost."

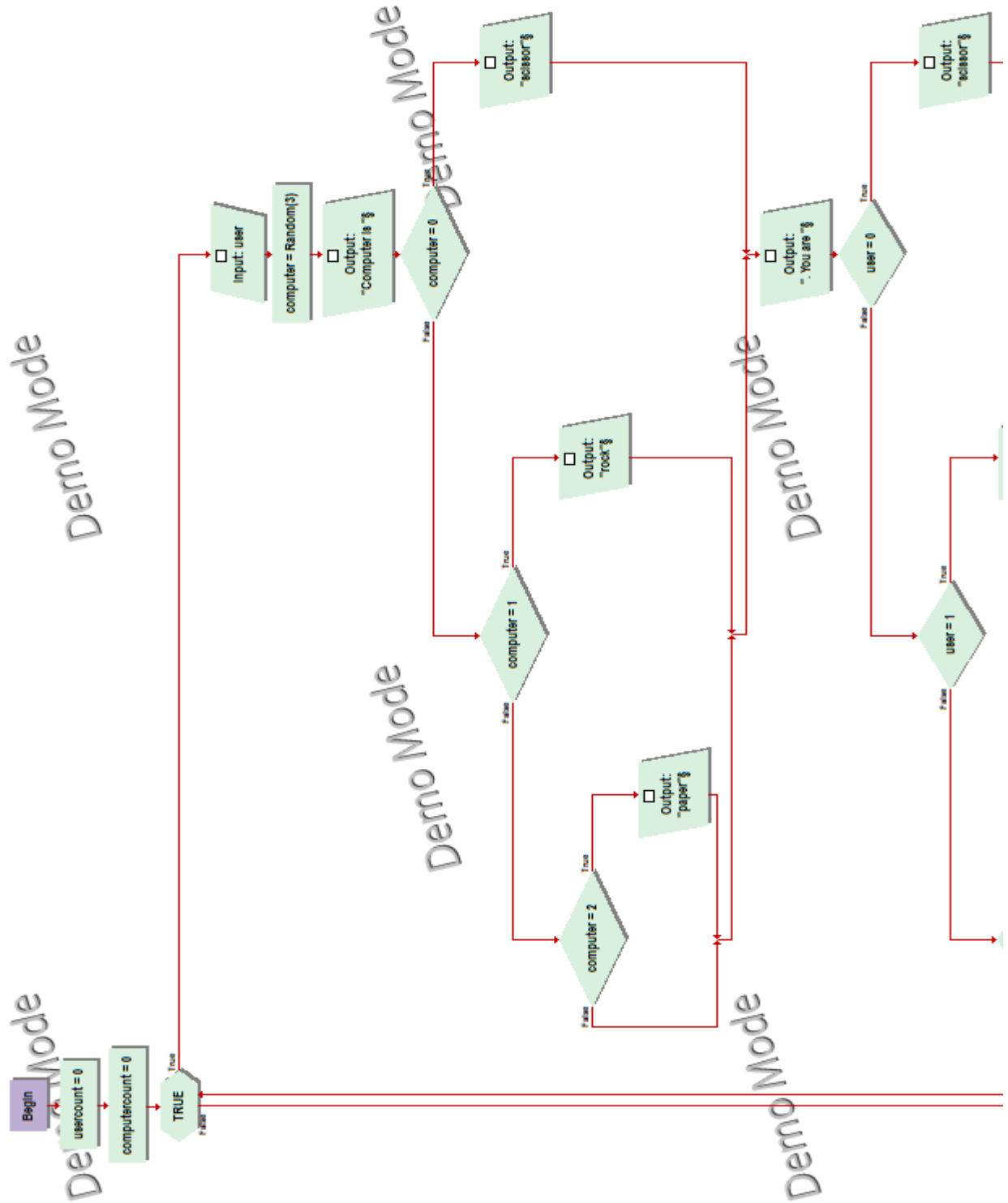
computerCount++ }

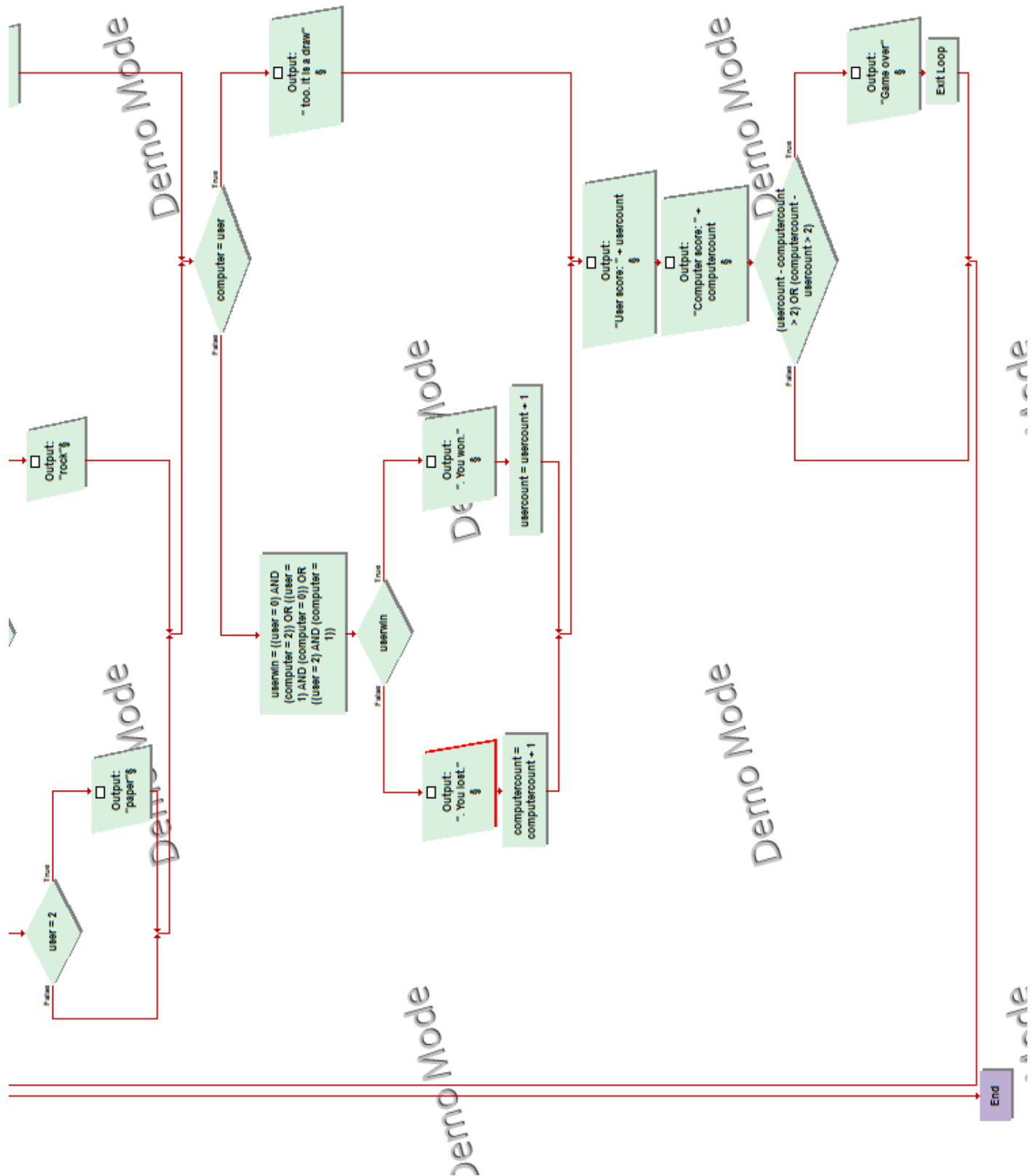
If (usercount – computercount > 2 || computercount – usercount > 2){


Output: "Game over" } } }

Rock Paper Scissors Game

Flow chart:







Enter your selection: scissor (0), rock (1), paper (2): 1
Computer is scissor. You are rock. You won.
User score: 1
Computer score: 0
Enter your selection: scissor (0), rock (1), paper (2): 0
Computer is paper. You are scissor. You won.
User score: 2
Computer score: 0
Enter your selection: scissor (0), rock (1), paper (2): 2
Computer is scissor. You are paper. You lost.
User score: 2
Computer score: 1
Enter your selection: scissor (0), rock (1), paper (2): 0
Computer is paper. You are scissor. You won.
User score: 3
Computer score: 1
Enter your selection: scissor (0), rock (1), paper (2): 1
Computer is scissor. You are rock. You won.
User score: 4
Computer score: 1
Game over

Rock Paper Scissors Game

Java code:

```
import java.util.Scanner;

public class Lab6dot2Class {

    /* Yvan Ngah. Computer Science 1 Spring. 6-2 Rock paper scissors.

    *This program allows a user to play rock paper scissors with the computer. The program generates a
    * random number from 0 to2 then compares the value to the user input in order to determine if the user
    * won or lost the game. The first player to get two times more points than their opponent wins the game. */

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        int userCount = 0 ;

        int computerCount = 0;

        while(true){

            int computer = (int)(Math.random() * 3);

            System.out.print("Enter your selection: scissor (0), rock (1), paper (2): ");

            int user = input.nextInt();

            System.out.print("The computer is ");

            switch (computer)

            {

                case 0: System.out.print("scissor"); break;

                case 1: System.out.print("rock"); break;

                case 2: System.out.print("paper");break;

            }

            System.out.print(". You are ");

            switch (user)

            {

                case 0: System.out.print("scissor"); break;

                case 1: System.out.print("rock"); break;

                case 2: System.out.print("paper");break;

            }

        }

    }

}
```



```

    }
    if (computer == user)
        System.out.println(" too. It is a draw");
    else
    {
        boolean userwin = (user == 0 && computer == 2) || (user == 1 && computer == 0) ||
(user == 2 && computer == 1);
        if (userwin){
            System.out.println(". You won.");
            userCount++;
        }
        else{
            System.out.println(". You lost.");
            computerCount++;
        }
    }
    System.out.println("User Score: " + usercount);
    System.out.println(". You won." + computercount);
    if(userCount - computerCount > 2 || computerCount - userCount > 2){
        System.out.println("Game Over");
        break;
    }
}

input.close();
}
}

```

Rock Paper Scissors Game

Code outputs:

Enter your selection: scissor (0), rock (1), paper (2): 2

The computer is paper. You are paper too. It is a draw.

User Score: 0

Computer Score: 0

Enter your selection: scissor (0), rock (1), paper (2): 2

The computer is rock. You are paper. You won.

User Score: 1

Computer Score: 0

Enter your selection: scissor (0), rock (1), paper (2): 1

The computer is scissor. You are rock. You won.

User Score: 2

Computer Score: 0

Enter your selection: scissor (0), rock (1), paper (2): 0

The computer is paper. You are scissor. You won.

User Score: 3

Computer Score: 0

Game Over

Temperature Converter

Description:

This program a range of temperature values from Celsius (40) to Fahrenheit (120) and from Fahrenheit (120) to Celsius (40). The program first creates a table header and then uses methods to calculate the temperature conversations which are then outputted in a tabular format.

Program Inputs: Celsius

Fahrenheit

Program Outputs: Celsius

Fahrenheit

Celsius

Fahrenheit

xx

xx

xx

xx

Temperature Converter

Pseudo code:

Output titles and format of table

Start a loop based on the conversions

- Output and format Celsius into table

- Output and format Celsius to Fahrenheit method into table

- Output and format Fahrenheit into table

- Output and format Fahrenheit to Celsius method into table

Exit loop based on conversions

Create method for Celsius to Fahrenheit

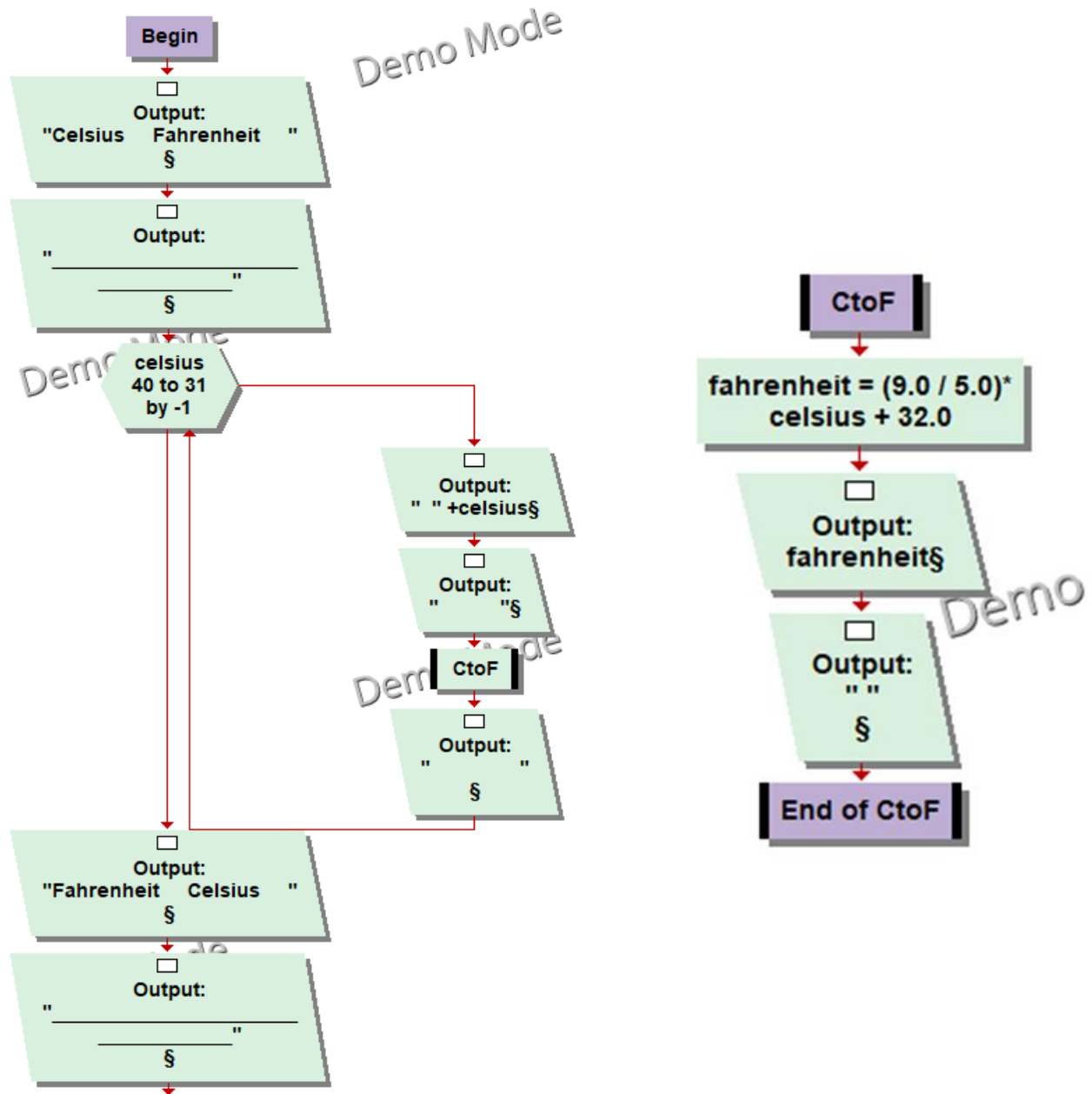
- Return value of conversion from Celsius to Fahrenheit

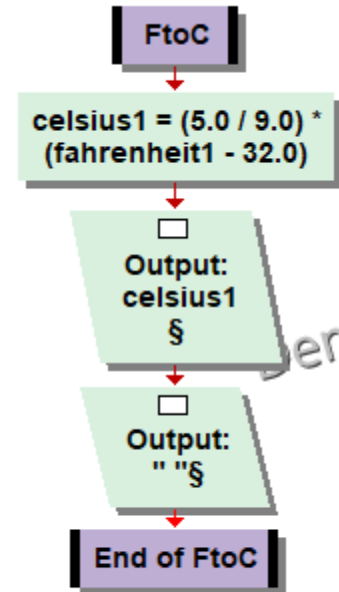
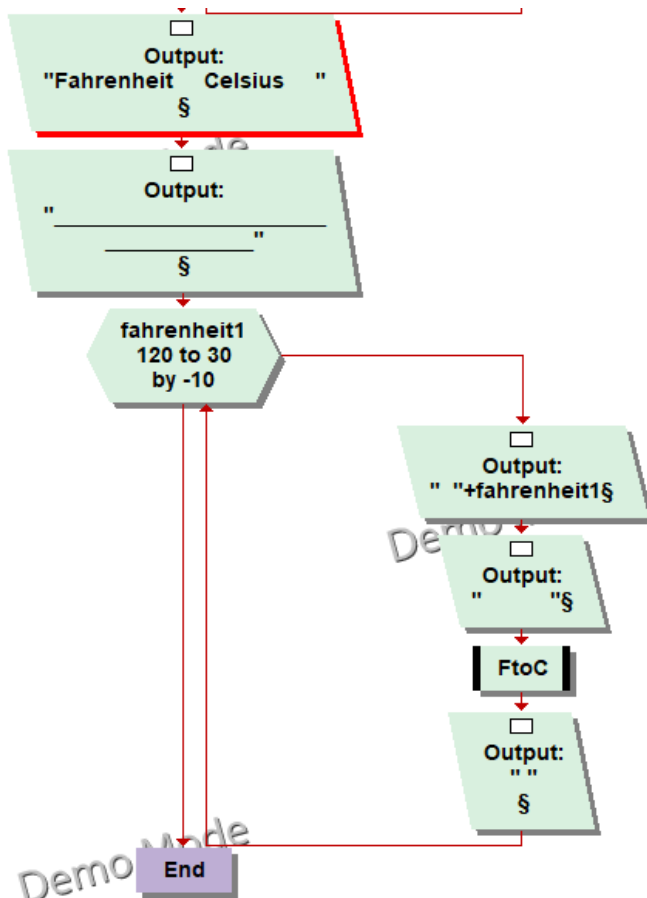
Create method for Fahrenheit to Celsius

- Return value of conversion from Fahrenheit to Celsius

Temperature Converter

Flow chart:





Celsius	Fahrenheit
40	104
39	102.2
38	100.4
37	98.6
36	96.8
35	95
34	93.2
33	91.4
32	89.6
31	87.8

Fahrenheit	Celsius
120	48.88888888888889
110	43.33333333333333
100	37.77777777777778
90	32.22222222222222
80	26.66666666666667
70	21.11111111111111
60	15.55555555555556
50	10
40	4.444444444444444
30	-1.111111111111111

Temperature Converter

Java code:

```
public class Lab7oneClass {  
    /* Yvan Ngah. Computer Science 1 Spring. 7-1 Temperature Conversions  
    * This program outputs the conversions of values from Celsius to Fahrenheit and vice  
    * versa and displays the outputs into a table.          */  
    public static void main(String[] args) {  
        System.out.println(  
            "Celsius   Fahrenheit   |   Fahrenheit   Celsius\n" +  
            "_____");  
        for (double celsius = 40.0, fahrenheit = 120.0; celsius >= 31.0; celsius--,  
            fahrenheit -= 10) {  
            System.out.printf("%-12.1f", celsius);  
            System.out.printf("%-15.1f", celsiusToFahrenheit(celsius));  
            System.out.printf("   %-15.1f", fahrenheit);  
            System.out.printf("%-7.2f\n\n", fahrenheitToCelsius(fahrenheit));  
        }  
    }  
    public static double celsiusToFahrenheit(double celsius) {  
        return (9.0 / 5) * celsius + 32;  
    }  
    public static double fahrenheitToCelsius(double fahrenheit) {  
        return (5.0 / 9) * (fahrenheit - 32);  
    }  
}
```

Temperature Converter

Java code outputs:

Celsius	Fahrenheit		Fahrenheit	Celsius
40.0	104.0		120.0	48.89
39.0	102.2		110.0	43.33
38.0	100.4		100.0	37.78
37.0	98.6		90.0	32.22
36.0	96.8		80.0	26.67
35.0	95.0		70.0	21.11
34.0	93.2		60.0	15.56
33.0	91.4		50.0	10.00
32.0	89.6		40.0	4.44
31.0	87.8		30.0	-1.11

Highest Scoring Student

Description:

This program outputs the highest scoring student when given a list of students and their grades. The user is first asked to enter the name and score of each student in the list. The highest scoring student and their high score are then outputted.

Program Inputs: name

score

Program Outputs: highname xx highscore xx

Highest Scoring Student

Pseudo code:

Make variables: name, score, highscore, highname

Initialize highscore to 0

Initialize name with an empty string

Start loop based on alldone

 Output instructions and exit statement

 Input name

 If name equals alldone

 Exit loop

 Else

 Output request student's score

 If score > highscore

 Assign name to highname

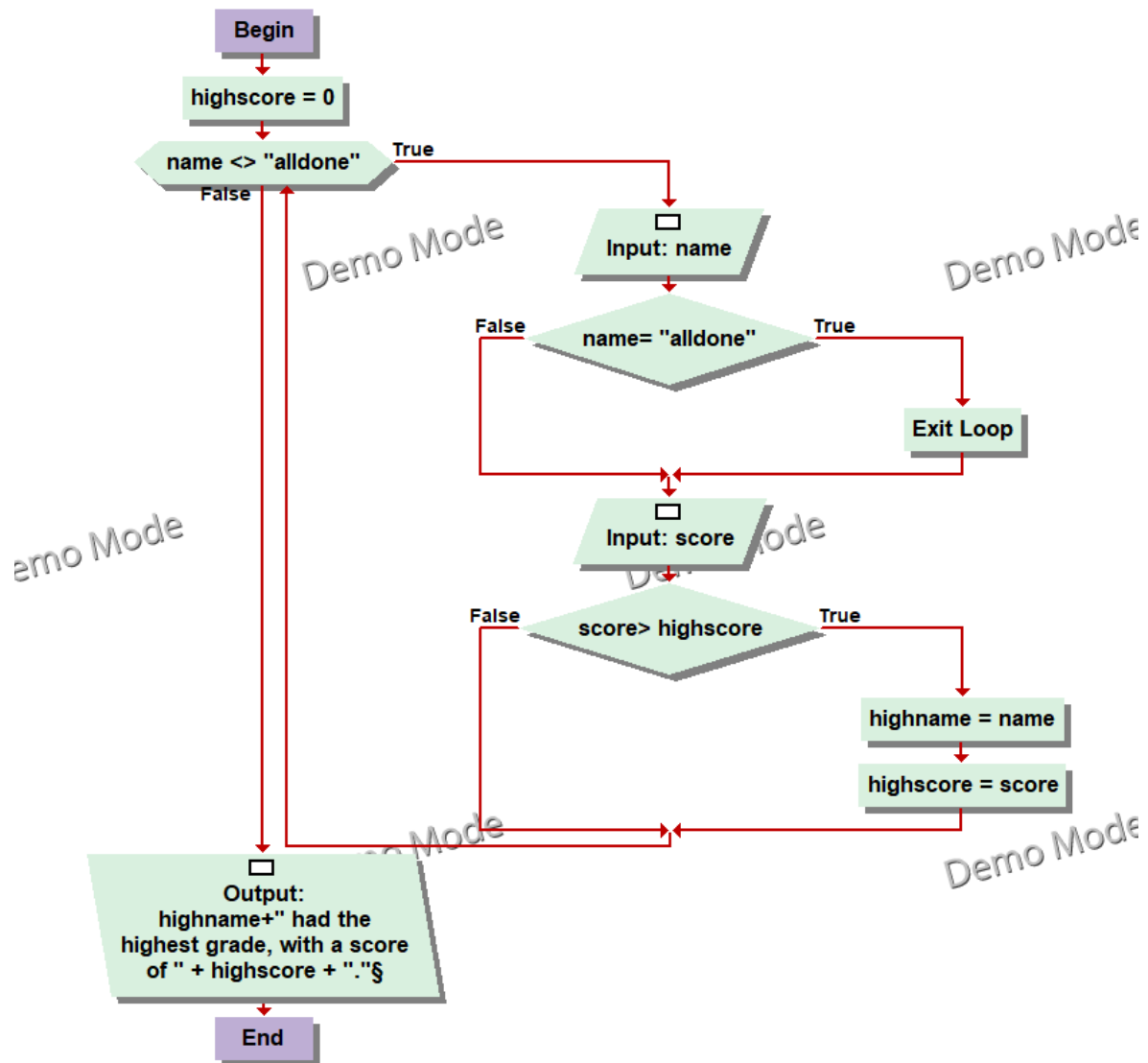
 Assign score to highscore

Exit loop of alldone

Output highname and highscore

Highest Scoring Student

Flow chart:



```
Please enter student's name, or alldone if finished: "Beth"
Please enter student's score: 91
Please enter student's name, or alldone if finished: "Luke"
Please enter student's score: 81
Please enter student's name, or alldone if finished: "Jaden"
Please enter student's score: 54
Please enter student's name, or alldone if finished: "alldone"
Beth had the highest grade, with a score of 91.
```

Highest Scoring Student

Java code:

```
import java.util.Scanner;

public class Lab8Class {

    /* Yvan Ngah. Computer Science 1 Spring. Lab 8 Highest score

    *This program asks the user for the student's name and score and then compares each value against each

    * other. The program then outputs the highest scoring student and their score. */

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        String name, highname = "nobody" ;

        boolean alldone = false;

        double score;

        double highscore = 0;

        while(!alldone) {

            System.out.print("Please enter student's name, or alldone if finished: ");

            name = input.next();

            if(name.equals("alldone"))

                alldone = true;

            else

            {

                System.out.print("Please enter student's score: ");

                score = input.nextDouble();

                if(score > highscore)

                {

                    highname = name;

                    highscore = score;  }}}

            System.out.print(highname+" had the highest grade, with a score of " + highscore + "." );

            input.close();

        }

    }
```

Highest Scoring Student

Java code outputs:

Please enter student's name, or alldone if finished: Beth

Please enter student's score: 91

Please enter student's name, or alldone if finished: Luke

Please enter student's score: 81

Please enter student's name, or alldone if finished: Jaden

Please enter student's score: 54

Please enter student's name, or alldone if finished: alldone

Beth had the highest grade, with a score of 91.0.

Math Tutor

Description:

This program tests the user based on their selection of a math topic. The user first selects between addition, subtraction, multiplication, and division. The user then is asked how many problems they would like from their selected topic. Based on the number of problems the user would like the program then outputs randomly generated questions infinitely until the user exits the program.

Program Inputs: choice xx

numproblems xx

user_answer xx

Program Outputs: xx answer

Math Tutor

Pseudo Code:

Create variables: choice, numproblems, maxoperand, num1, num2, user_answer, float_number

Initialize answer to 0

Start a loop based on choice

 Output list of math problem topics

 Input choice

 If choice is not equal to 5

 Input numproblems

 Initialize maxoperand to 10

 Loop for numproblems

 Provide random value for num1 and num2

 Keep track of number of problems

 If choice equals 1

 Add num1 and num2

 Output whether answer is correct or incorrect and the correct answer

 Else if choice equals 2

 Subtract num1 and num2

 Output whether answer is correct or incorrect and the correct answer

 Else if choice equals 3

 multiply num1 and num2

 Output whether answer is correct or incorrect and the correct answer

 Else if choice equals 4

 divide num1 and num2

 Output whether answer is correct or incorrect and the correct answer

end loop for choice

 Output closing statement

Math Tutor

Java Code:

```
import java.util.Random;
import java.util.Scanner;
public class Lab7dash2 {
    /* Yvan Ngah
    * Computer Science 1 Spring
    * 7-2 Math Tutor.
    *
    * This program calculates an equation and then prompts the user to answer the
    * equation. The computer then checks if the users answer is correct. The program continues to
    * quiz the user until they exit the program.
    */
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Random rnd = new Random();
        int choice, numProblems, maxOperand, num1, num2, answer = 0, user_answer;
        float float_answer;

        do {
            System.out.println("Math Tutor");

            System.out.println(
                "Choose the type of problem:\n" +
                "1. Addition\n" +
                "2. Subtraction\n" +
                "3. Multiplication\n" +
                "4. Division\n" +
                "5. Quit"
            );
        };
```



```

        System.out.print("Enter your choice: \n");
        choice = sc.nextInt();
        if( choice != 5){
            System.out.print("How many problems? \n");
            numProblems = sc.nextInt();
            maxOperand = 10;
            for (int i = 0; i < numProblems; i++) {
                num1 = rnd.nextInt(maxOperand);
                num2 = rnd.nextInt(maxOperand);
                if (choice == 1) {
                    add(num1, num2);
                }
                else if (choice == 2) {
                    subtract(num1, num2);
                }
                else if (choice == 3) {
                    multiply(num1, num2);
                }
                else if (choice == 4) {
                    divide(num1, num2);
                }
            }
        }

    }while(choice !=5);
    System.out.println("Thanks for using my Math Tutor.");
}

```

```

public static void add(int num1, int num2) {
    Scanner sc = new Scanner(System.in);
    int answer = 0,user_answer = 0;
    System.out.printf("%d + %d = ?\n", num1, num2);

```

```

        user_answer=sc.nextInt();

        answer = num1 + num2;

        if( user_answer == answer ) {

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

        } else {

            System.out.printf("Incorrect. The answer is %d.\n", answer);

        }

    }

    public static void subtract(int num1, int num2) {

        Scanner sc = new Scanner(System.in);

        int answer = 0,user_answer = 0;

        Random rnd = new Random();

        while(num1 < num2){

            num1 = rnd.nextInt(10);

            num2 = rnd.nextInt(10);

        }

        System.out.printf("%d - %d = ?\n", num1, num2);

        user_answer=sc.nextInt();

        answer = num1 - num2;

        if( user_answer == answer ) {

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

        } else {

            System.out.printf("Incorrect. The answer is %d.\n", answer);

        }

    }

    public static void multiply(int num1, int num2) {

        Scanner sc = new Scanner(System.in);

        int answer = 0,user_answer = 0;

        System.out.printf("%d * %d = ?\n", num1, num2);

        user_answer=sc.nextInt();

        answer = num1 * num2;

        if( user_answer == answer ) {

```

```

        System.out.println("Correct!");
    } else {
        System.out.printf("Incorrect. The answer is %d.\n", answer);
    }
}

public static void divide(int num1, int num2) {
    Scanner sc = new Scanner(System.in);
    float float_answer;
    Random rnd = new Random();
    float f_num1 = rnd.nextInt(10);
    float f_num2 = rnd.nextInt(10);
    while(f_num2 == 0){
        f_num2 = rnd.nextInt(10);
    }
    System.out.printf("%f / %f = ?\n", f_num1, f_num2);
    float user_float_answer=sc.nextFloat();
    float_answer = f_num1 / f_num2;
    if( user_float_answer == float_answer ) {
        System.out.println("Correct!");
    } else {
        System.out.printf("Incorrect. The answer is %f.\n", float_answer);
    }
}
}
}

```

Math Tutor

Java Code Outputs:

Math Tutor

Choose the type of problem:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Quit

Enter your choice:

1

How many problems?

2

$1 + 7 = ?$

8

Correct!

$9 + 7 = ?$

2

Incorrect. The answer is 16.

Math Tutor

Choose the type of problem:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Quit

Enter your choice:

2

How many problems?

2

$0 - 0 = ?$

0

Correct!

$5 - 3 = ?$

1

Incorrect. The answer is 2.

Math Tutor

Choose the type of problem:

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Quit

Enter your choice:

3

How many problems?

2

$8 * 7 = ?$

56

Correct!

$4 * 1 = ?$

8

Incorrect. The answer is 4.

Math Tutor

Choose the type of problem:

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Quit

Enter your choice:

4

How many problems?

2

$6 / 1 = ?$

11

Incorrect. The answer is 6.000000.

$9 / 8 = ?$

1

Correct!

Math Tutor

Choose the type of problem:

1. Addition

2. Subtraction

3. Multiplication

4. Division

5. Quit

Enter your choice:

5

Restaurant Bill Calculator

Description:

The program is designed to help servers take orders by providing them with an easy-to-follow program to input the customer's data in a restaurant setting. The program firsts ask the server for the group's size, then their discount type, and finally their meal options. The program then outputs each customer's individual bill with their applicable discount applied, and then the group's grand total.

Program Inputs: partysize xx

discount_type xx

menue_item xx

Program Outputs: menue xx

user xx usertotal xx discount_type xx

xx grandtotal

Restaurant Bill Calculator

Pseudo Code:

Initialize both arrays with data

Initialize totals

Input numberofpeopleintheparty

Start a loop based on the numberofpeopleintheparty

 Output statusfordiscount

 Input discounttype

 Output menu

 Loop for menu choice of three items

 Based on choice keep track of the individual's total price

 Calculate discount

 Keep track of grand total

 End of loop for menu choice of three items

 Base on statusfordiscount calculate tax rate

 Output total for this person

End of loop for numberofpeopleintheparty

Output Grand Total for Order

Restaurant Bill Calculator

Java Code:

```
import java.util.Scanner;

public class Lab9Class {

    /* Yvan Ngah. Computer Science 1 Spring. 7.9 Dual Arrays.

    *This program calculates the bill of restaurant customers based on their three picks from the restaurant
    menu.

    *The program asks the user for their group size and then asks the user to fill out each customers data and
    their food requests.

    *The program then outputs each customer's individual bill and then grand total with applicable discounts
    applied.*/

    public static void main(String[] args) {

        String[] itemname = {"Soup", "Wings", "Burger", "Chicken Sandwich", "Fries", "Pie", "Ice
        Cream", "Soft Drink", "Coffee"};

        double[] price= {2.50,0.15,4.95,5.95,1.99,2.95,2.99,1.50,1.00};

        int partysize;

        Scanner input = new Scanner(System.in);

        System.out.println("Please input the number of people in your party...");

        System.out.print("Please type a value for NUMBER_IN_PARTY: ");

        System.out.println(" ");

        partysize =input.nextInt();

        double grandtotal=0.0;

        for(int user =1; user<=partysize; user++){

            int discount_type ,menue_item ,wingsnum;

            double usertotal = 0.0;

            System.out.println("Please input order information for person "+user+"...\n");

            System.out.println("Is this person eligible for a discount? (enter a number 1 - 4)");

            System.out.println("1 - if CHILD 5 years of age or younger");

            System.out.println("2 - if TEEN between 13 and 19 years of age");

            System.out.println("3 - if SENIOR 65 years of age or older");

            System.out.println("4 - if NONE of the above");

            System.out.print("Please type a value for DISCOUNT_TYPE: ");
```

```

discount_type = input.nextInt();
System.out.println(" ");
System.out.println("Menu items that may be selected: ");
for(int index = 0, countnum = 0; index < itemname.length; index++, countnum++) {
    String x = itemname[index];
    System.out.println(countnum + " " + x);
}
System.out.println(" ");
for(int menue=1; menue<=3 ;menue++){
    System.out.println("Please select menu item "+menue+" (enter a number 1 -
9)");

    System.out.print("Please type a value for SELECTED_ITEM: ");
    System.out.println(" ");
    menue_item = input.nextInt();
    if(menue_item == 1){
        System.out.print("Please enter number of wings to be ordered...\nPlease
type a value for NUMBER_OF_WINGS: ");
        wingsnum = input.nextInt();
        usertotal+=wingsnum*price[1];
    }else{
        usertotal+=price[menue_item];
    }
}
if(discount_type == 1)
    usertotal =0.00;
else if(discount_type == 2 || discount_type == 3)
    usertotal =0.75 *usertotal;
else
    usertotal =1.05*usertotal;
usertotal = (double)Math.round(usertotal * 100.0) / 100.0;
System.out.println("Person " + user + " Total: "+"$"+ usertotal + " (Discount Type "+
discount_type +")");
System.out.println(" ");

```

```
        grandtotal += usertotal;
    }
    System.out.println("Grand Total for Order: "+"$" + grandtotal);
    input.close();
}
}
```

Restaurant Bill Calculator

Java Code Outputs:

Please input the number of people in your party...

Please type a value for NUMBER_IN_PARTY:

4

Please input order information for person 1...

Is this person eligible for a discount? (enter a number 1 - 4)

1 - if CHILD 5 years of age or younger

2 - if TEEN between 13 and 19 years of age

3 - if SENIOR 65 years of age or older

4 - if NONE of the above

Please type a value for DISCOUNT_TYPE: 1

Menu items that may be selected:

0 Soup

1 Wings

2 Burger

3 Chicken Sandwich

4 Fries

5 Pie

6 Ice Cream

7 Soft Drink

8 Coffee

Please select menu item 1 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

0

Please select menu item 2 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

1

Please enter number of wings to be ordered...

Please type a value for NUMBER_OF_WINGS: 5

Please select menu item 3 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

2

Person 1 Total: \$0.0 (Discount Type 1)

Please input order information for person 2...

Is this person eligible for a discount? (enter a number 1 - 4)

1 - if CHILD 5 years of age or younger

2 - if TEEN between 13 and 19 years of age

3 - if SENIOR 65 years of age or older

4 - if NONE of the above

Please type a value for DISCOUNT_TYPE: 2

Menu items that may be selected:

0 Soup

1 Wings

2 Burger

3 Chicken Sandwich

4 Fries

5 Pie

6 Ice Cream

7 Soft Drink

8 Coffee

Please select menu item 1 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

3

Please select menu item 2 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

4

Please select menu item 3 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

5

Person 2 Total: \$8.17 (Discount Type 2)

Please input order information for person 3...

Is this person eligible for a discount? (enter a number 1 - 4)

1 - if CHILD 5 years of age or younger

2 - if TEEN between 13 and 19 years of age

3 - if SENIOR 65 years of age or older

4 - if NONE of the above

Please type a value for DISCOUNT_TYPE: 3

Menu items that may be selected:

0 Soup

1 Wings

2 Burger

3 Chicken Sandwich

4 Fries

5 Pie

6 Ice Cream

7 Soft Drink

8 Coffee

Please select menu item 1 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

5

Please select menu item 2 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

6

Please select menu item 3 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

7

Person 3 Total: \$5.58 (Discount Type 3)

Please input order information for person 4...

Is this person eligible for a discount? (enter a number 1 - 4)

1 - if CHILD 5 years of age or younger

2 - if TEEN between 13 and 19 years of age

3 - if SENIOR 65 years of age or older

4 - if NONE of the above

Please type a value for DISCOUNT_TYPE: 4

Menu items that may be selected:

0 Soup

1 Wings

2 Burger

3 Chicken Sandwich

4 Fries

5 Pie

6 Ice Cream

7 Soft Drink

8 Coffee

Please select menu item 1 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

8

Please select menu item 2 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

0

Please select menu item 3 (enter a number 1 - 9)

Please type a value for SELECTED_ITEM:

5

Person 4 Total: \$6.77 (Discount Type 4)

Grand Total for Order: \$20.52