Java Assignment

Module 1 Assignment

# Please use the jar file included to easily test the program.

Command: java -jar Module1Assignment.jar.

Note: the code in this report is slightly different due to some final bug fixes.

# First Part

* Write a program to check if a candidate is eligible for voting or not. (Hint: Check age)
* Write a program to check if the number is positive or negative.
* Extend the previous program to check whether the given number is positive, zero or negative. (Hint: use if else conditions) Note: Previous program was extended and therefore is not standalone.
* Write a program to find largest of two numbers.
* Write a program to check given number is even or odd. (Hint: use % operator)

**import** java.util.Scanner;

**public** **class** Module1Assignment {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

System.***out***.println("Check if a candidate is eligible for voting or not.");

Scanner userInput = **new** Scanner(System.***in***);

System.***out***.println("Please Enter Your Age: ");

**int** ageOfCandidate = userInput.nextInt();

userInput.nextLine();

**if** (ageOfCandidate < 0) {

System.***out***.println("We're sorry; you have not been born yet. ");

} **else** **if** (ageOfCandidate == 0) {

System.***out***.println("We're sorry; try again when you stop wearing nappies. ");

}**else** **if** (ageOfCandidate < 18) {

System.***out***.println("We're sorry you are not old enough to vote. ");

} **else** {

System.***out***.println("Please select who you want to vote for. ");

System.***out***.println("Please don't vote for Trump! ");

}

System.***out***.println("Pick an integer number; any integer number.");

**int** numberInput = userInput.nextInt();

userInput.nextLine();

**if** (numberInput < 0) {

System.***out***.println("You entered a negative number. ");

} **else** **if** (numberInput > 0) {

System.***out***.println("You entered a positive number. ");

} **else** {

System.***out***.println("Zero is neither postitive or negative.-1 ");

}

System.***out***.println("Select your first number.");

**float** number1Input = userInput.nextFloat();

userInput.nextLine();

System.***out***.println("Select your second number.");

**float** number2Input = userInput.nextFloat();

userInput.nextLine();

**if** (number1Input > number2Input) {

System.***out***.println("The first number is larger.");

System.***out***.println(number1Input + " > " + number2Input);

} **else** **if** (number1Input < number2Input) {

System.***out***.println("The second number is larger.");

System.***out***.println(number1Input + " < " + number2Input);

} **else** {

System.***out***.println("The numbers are equal.");

System.***out***.println(number1Input + " = " + number2Input);

}

System.***out***.println("Select an integer number to check whether it is odd or even.");

**int** numberOddorEvenInput = userInput.nextInt();

userInput.nextLine();

**int** numberOddorEven = numberOddorEvenInput % 2;

**if** (numberOddorEven == 1) {

System.***out***.println("Number is odd.");

} **else** {

System.***out***.println("Number is even.");

}

//ForLoops.ForLoops();

//WhileLoops.whileLoops();

DoWhileLoops.*doWhileLoops*();

}

}

# For loops

**import** java.util.Scanner;

**public** **class** ForLoops {

**public** **static** **void** forLoops() {

Scanner userInput = **new** Scanner(System.***in***);

// For loops

// Program to print 10 even numbers and 10 odd numbers.

System.***out***.println("---For loops---");

System.***out***.println("");

System.***out***.println("First 10 even numbers");

**for** (**int** i = 1; i < 21; i++) {

**if** (i % 2 == 0) {

System.***out***.println(i);

}

}

System.***out***.println("First 10 odd numbers");

**for** (**int** i = 1; i < 21; i++) {

**if** (i % 2 == 1) {

System.***out***.println(i);

}

}

// factorial of a number

System.***out***.println("Please enter an integer for factorial.");

**int** iFactorial = userInput.nextInt();

userInput.nextLine();

**int** numberFactorial = 1;

**for** (**int** i = 1; i <= iFactorial; i++) {

numberFactorial = numberFactorial \* i;

}

System.***out***.println(numberFactorial);

//generate tables of 10

System.***out***.println("Generate tables of 10 (0 to 12 x 10)");

**for** (**int** i = 0; i < 13; i++) {

**int** iTimes = 10 \* i;

System.***out***.println("10 x " + i + " = " + iTimes);

}

//add the digits of a number.

System.***out***.println("Add the digits of an integer.");

System.***out***.println("Please enter an integer number.");

**int** numberSum = userInput.nextInt();

userInput.nextLine();

**int** iPower;

**int** iDigit;

**int** iDigitSum = 0;

**for** (**int** i = 1; numberSum > 0; i++) {

iPower = (**int**) Math.*pow*(10, i);

iDigit = numberSum % iPower;

numberSum = numberSum - iDigit;

iDigit = iDigit / (iPower / 10);

iDigitSum = (**int**) (iDigitSum + iDigit);

}

System.***out***.println("Addition of digits = " + iDigitSum);

//Reverse the digits of a number.

System.***out***.println("Reverse the digits of a number (uses float)");

**float** numberToReverse = userInput.nextFloat();

userInput.nextLine();

String numberString = Float.*toString*(numberToReverse);

**int** numberLength = numberString.length();

**int** numberLastIndex = numberLength - 1;

**char**[] numberCharacters = **new** **char**[numberLength];

**char**[] numberCharactersReversed = **new** **char**[numberLength];

numberString.getChars(0, numberLength, numberCharacters, 0);

**for** (**int** i = 0; i < numberLength; i++)

numberCharactersReversed[numberLastIndex - i] = numberCharacters[i];

String numberStringReversed = String.*copyValueOf*(numberCharactersReversed);

System.***out***.println(numberStringReversed);

// generate 10 Fibonacci numbers

System.***out***.println("Generate 10 Fibonacci numbers.");

**int** num1 = 0;

**int** num2 = 1;

**int** numFibonacci;

System.***out***.println(num1);

System.***out***.println(num2);

**for** (**int** i = 2; i < 11; i++) {

numFibonacci = num1 + num2;

System.***out***.println(numFibonacci);

num1 = num2;

num2 = numFibonacci;

}

userInput.close();

}

}

# While Loops

**import** java.util.Scanner;

**public** **class** WhileLoops {

**public** **static** **void** whileLoops() {

Scanner userInput = **new** Scanner(System.***in***);

// For loops

// Program to print 10 even numbers and 10 odd numbers.

System.***out***.println("---While loops---");

System.***out***.println("");

System.***out***.println("First 10 even numbers");

**int** i = 1;

**while** ( i < 21 ) {

**if** (i % 2 == 0) {

System.***out***.println(i);

}

i++;

}

System.***out***.println("First 10 odd numbers");

i = 1;

**while** ( i < 21 ) {

**if** (i % 2 == 1) {

System.***out***.println(i);

}

i++;

}

// factorial of a number

System.***out***.println("Please enter an integer for factorial.");

**int** iFactorial = userInput.nextInt();

userInput.nextLine();

**int** numberFactorial = 1;

i = 1;

**while** ( i <= iFactorial ) {

numberFactorial = numberFactorial \* i;

i++;

}

System.***out***.println(numberFactorial);

//generate tables of 10

System.***out***.println("Generate tables of 10 (0 to 12 x 10)");

i = 0;

**while** ( i < 13 ) {

**int** iTimes = 10 \* i;

System.***out***.println("10 x " + i + " = " + iTimes);

i++;

}

//add the digits of a number.

System.***out***.println("Add the digits of an integer.");

System.***out***.println("Please enter an integer number.");

**int** numberSum = userInput.nextInt();

userInput.nextLine();

**int** iPower;

**int** iDigit;

**int** iDigitSum = 0;

i = 1;

**while** ( numberSum > 0 ) {

iPower = (**int**) Math.*pow*(10, i);

iDigit = numberSum % iPower;

numberSum = numberSum - iDigit;

iDigit = iDigit / (iPower / 10);

iDigitSum = (**int**) (iDigitSum + iDigit);

i++;

}

System.***out***.println("Addition of digits = " + iDigitSum);

//Reverse the digits of a number.

System.***out***.println("Reverse the digits of a number (uses float)");

**float** numberToReverse = userInput.nextFloat();

userInput.nextLine();

String numberString = Float.*toString*(numberToReverse);

**int** numberLength = numberString.length();

**int** numberLastIndex = numberLength - 1;

**char**[] numberCharacters = **new** **char**[numberLength];

**char**[] numberCharactersReversed = **new** **char**[numberLength];

numberString.getChars(0, numberLength, numberCharacters, 0);

i = 0;

**while** ( i < numberLength ) {

numberCharactersReversed[numberLastIndex - i] = numberCharacters[i];

i++;

}

String numberStringReversed = String.*copyValueOf*(numberCharactersReversed);

System.***out***.println(numberStringReversed);

// generate 10 Fibonacci numbers

System.***out***.println("Generate 10 Fibonacci numbers.");

**int** num1 = 0;

**int** num2 = 1;

**int** numFibonacci;

System.***out***.println(num1);

System.***out***.println(num2);

i = 2;

**while** ( i < 11 ) {

numFibonacci = num1 + num2;

System.***out***.println(numFibonacci);

num1 = num2;

num2 = numFibonacci;

i++;

}

userInput.close();

}

}

# Do While Loops

**import** java.util.Scanner;

**public** **class** DoWhileLoops {

**public** **static** **void** doWhileLoops() {

Scanner userInput = **new** Scanner(System.***in***);

// For loops

// Program to print 10 even numbers and 10 odd numbers.

System.***out***.println("---Do While loops---");

System.***out***.println("");

System.***out***.println("First 10 even numbers");

**int** i = 1;

**do** {

**if** (i % 2 == 0) {

System.***out***.println(i);

}

i++;

} **while** ( i < 21 );

System.***out***.println("First 10 odd numbers");

i = 1;

**do** {

**if** (i % 2 == 1) {

System.***out***.println(i);

}

i++;

} **while** ( i < 21 );

// factorial of a number

System.***out***.println("Please enter an integer for factorial.");

**int** iFactorial = userInput.nextInt();

userInput.nextLine();

**int** numberFactorial = 1;

i = 1;

**do** {

numberFactorial = numberFactorial \* i;

i++;

} **while** ( i <= iFactorial );

System.***out***.println(numberFactorial);

//generate tables of 10

System.***out***.println("Generate tables of 10 (0 to 12 x 10)");

i = 0;

**do** {

**int** iTimes = 10 \* i;

System.***out***.println("10 x " + i + " = " + iTimes);

i++;

} **while** ( i < 13 );

//add the digits of a number.

System.***out***.println("Add the digits of an integer.");

System.***out***.println("Please enter an integer number.");

**int** numberSum = userInput.nextInt();

userInput.nextLine();

**int** iPower;

**int** iDigit;

**int** iDigitSum = 0;

i = 1;

**do** {

iPower = (**int**) Math.*pow*(10, i);

iDigit = numberSum % iPower;

numberSum = numberSum - iDigit;

iDigit = iDigit / (iPower / 10);

iDigitSum = (**int**) (iDigitSum + iDigit);

i++;

} **while** ( numberSum > 0 );

System.***out***.println("Addition of digits = " + iDigitSum);

//Reverse the digits of a number.

System.***out***.println("Reverse the digits of a number (uses float)");

**float** numberToReverse = userInput.nextFloat();

userInput.nextLine();

String numberString = Float.*toString*(numberToReverse);

**int** numberLength = numberString.length();

**int** numberLastIndex = numberLength - 1;

**char**[] numberCharacters = **new** **char**[numberLength];

**char**[] numberCharactersReversed = **new** **char**[numberLength];

numberString.getChars(0, numberLength, numberCharacters, 0);

i = 0;

**do** {

numberCharactersReversed[numberLastIndex - i] = numberCharacters[i];

i++;

} **while** ( i < numberLength );

String numberStringReversed = String.*copyValueOf*(numberCharactersReversed);

System.***out***.println(numberStringReversed);

// generate 10 Fibonacci numbers

System.***out***.println("Generate 10 Fibonacci numbers.");

**int** num1 = 0;

**int** num2 = 1;

**int** numFibonacci;

System.***out***.println(num1);

System.***out***.println(num2);

i = 2;

**do** {

numFibonacci = num1 + num2;

System.***out***.println(numFibonacci);

num1 = num2;

num2 = numFibonacci;

i++;

} **while** ( i < 11 );

userInput.close();

}

}