Java Documentation

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Java e-project

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**Certificate of Completion**

**T**his is to certify Ajani Habeeb Abiola, Kayode Azeez Muqit Molade, Oloruntobi Fanope Daniel, and Kehinde Boluwaji Demilade for completion of the Semester 2 JAVA e-Project.

**Signed by:**

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**Problem Definition**

Write a program to create Console based Calculator which should perform various function like Addition, Subtraction, Multiplication, Division, Power, Square, Cube, Square root, round, ceiling, floor, Min Value, Max Value, sin, cos, asin, acos, atan, exponential, Palindrome, Armstrong number, Prime number, Average (first take the input the number of entries expected and then calculate the average), GCD (of two numbers), LCM(of two number. The list of option must be stated on the console-based application which should not terminate the program until last option exit is selected.

**Project Specification**

The application is to be developed for Windows Platform NetBeans 8, Java SE 8.

The Application should perform the following functions:

* Should display all the options the new designed calculated upon
* Must Calculate mathematical functions and display the output based on that.
* Functions Like:
* Adding, subtracting, Multiplication, Division.
* Power, Square, Cube, Square root
* Round, ceiling, floor, Min Value, Max Value.
* Trigonometric functions such as sin, cos, asin, acos, atan
* Exponential function
* Palindrome (It must accept at least three-digit number as it must ask the number of digit to be entered and then must be check whether the given number is prime or not.
* Armstrong number (must check whether the entered is Armstrong or not.
* Prime number (must calculate whether the number is prime or not
* Average (first take the input the number of entries expected and then calculate the average),
* GCD (of the two numbers entered by the user)
* LCM (of the two numbers entered by the user)
* Exit option (to terminate the program).

**ACKNOWLEDGEMENT**

I would like to acknowledge all those who have given moral support and assisted me in making the project a success.

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And finally, I would like to offer many thanks to all my colleagues for their valuable suggestions and constructive feedback.

**Customer Requirement Specification**

**Client:** **Aptech Computer Education**

**Project Objectives:**

Write a Java program to simulate a calculator that performs various functions like Addition, Subtraction, Division, etc. The list of option must be stated on the console based application which should not terminate the program until last option exit is selected.

**Inputs from the User:**

* The function to be performed
* The inputs numbers to be operated upon

**Hardware Requirement:**

* A minimum computer system that will help you access all the tools in the course is a Pentium 166 or better.
* 128 Megabytes of RAM or better.

**Software Requirement:**

Either or Combination of the following Software’s are to be used:

* Java / J2EE / .NET / C /
* Notepad

**Architecture and Design of the System**

COMPUTER/

CONSOLE

Input Stream

Output Stream

**Algorithm**

BEGIN

import packages;

class decleration

//Method to sum through array of felds

BEGIN

create Scanner object

instantiate feild to accept input from command

instantiate array of size input feild

input values into array

total = 0

total = total + array elements

DISPALY total

END

//Method decleration to subtract through an array of feilds

BEGIN

Create Scanner object

Instatiate feild to accept input from command

create an array object of size input feild

iterate through the feilds of the array to input values

sort array values in increasing order

Iterate through array from end to start after sorting

subtract the values in first value from second value

For when the result of subtraction is "-",change to "+"

let the result of subtraction be multiplied by "-1"

DISPLAY result

END

//Method declearation to mutiply thhrough the feilds of an array

BEGIN

Create Scanner object

Instatiate feild to accept input from command

create an array object of size the input feild

iterate through the feilds of the array to input values

Insatiate multiplier field and set to "1" to return feild \*multiplier feild = feild

Iterate through array and multiply by values by multiplying feild

result =result \* value;

DISPLAY result

END

//Method to divide two operands

BEGIN

Create Scanner object

Declare feilds to be calculated

feild result = 0;

Instatiate feilds to accept input from command

Check if first feild is greater than the second feild and let the result be equals greater feild/lesser feild

DISPLAY result

END

//Method to calculate the gcd of Integers

BEGIN

declare feilds

create Scanner object

instantiate feilds to accept input from command

iterate through the feilds with a counter feild which is less or equal each of the feilds

check if feilds divided by counter feild has no remainder

instantiate feild(gcd) to be equal to the counter varaible where the two feilds csn longer be divided with no remainder

instantiate result feild to be equal the product of feilds divide by feild(gcd)

DISPLAY result

END

//Method to check the cuberoot of an operand

BEGIN

Create Scanner object

decleare feild and instatiate to accept input from command

declare feild an invoke cbrt()of operand method in lang.Math as its value to return cube root of operand

DISPLAY result

END

//Method to check the cuberoot of an operand

BEGIN

Create Scanner object

decleare feild and instatiate to accept input from command

declare feild an invoke sqrt()of operand methhod in lang.Math as its value to return the square root of operand

DISPLAY result

END

//Method to check the raise to power the number given of an operand

BEGIN

Create Scanner object

decleare feild and instatiate to accept input from command

declare result feild an invoke pow()methhod in lang.Math as its value to return the power of operand

DISPLAY result

END

//Method to check sin of an operand

BEGIN

Create Scanner object

declearing feild an instatiate to accept input from command

decleare result feild and invoke sin()method in lang.Math to return the sin of operand

DISPLAY result

END

//method decleration to return the arche sin of operand

BEGIN

create Scanner object

declear feild and instantiate to accept input from command

declare reult sfeild and invoke asin() method as its value to return the arche sin of operand

DISPLAY result

END

//method decleration to return the arche sin of operand

BEGIN

create Scanner object

declear feild and instantiate to accept input from command

declare result feild and invoke cos() method as its value to return the arche cos of operand

DISPLAY result

END

//method decleration to return the arche sin of operand

BEGIN

create Scanner object

declear feild and instantiate to accept input from command

declare result feild and invoke acos() method as its value to return the arche cos of operand

DISPLAY result

END

//method decleration to return the exponential of operand

BEGIN

create Scanner object

declear feild and instantiate to accept input from command

declare result feild and invoke exp() method as its value to return the exponential of operand

DISPLAY result

END

//method decleration to return the log in base 10 of operand

BEGIN

Create Scanner object

declare feild to accept input from command

declare result feild and invoke log10() method from lang.Math to return the log of operand in base 10

DISPLAY result

END

//method decleration to round off an operand

BEGIN

Create Scanner object

declare feild to accept input from command

declare result feild and invoke round() method from lang.Math to round off a double/float value of operand to the nearest int value

DISPLAY result

END

//method decleration to return the gretest int less or equal to operand

BEGIN

Create Scanner object

declare feild to accept input from command

declare result feild and invoke ceil() method from lang.Math to return the gretest int less or equal to operand

DISPLAY result

END

//Method to check if operand is prime

BEGIN

Declare feilds

**Task Sheet:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Project:**  **Java eProject** | | **Project**  **Title** | **Activity**  **Prepared**  **By** | **Date pf Activity Preparation Plan 12/06/2019** | | | |
| **Sr No.** | **Tasks:** | **Actual Start Date** | **Actual Days** | **Teammates**  **Names** | **Status** |
| 1 | Preparation of Algorithm for the calculator program | Console Based Calculator |  | June 12, 2019 | 30 Days | Tobi Fanope | Completed |
| Abiola Ajani |
| 2 | Preparation of the calculator code in java according to the algorithm |
| Kayode Muquit |
| 3 | Final check and documentation of the project |
| Kehinde Boluwaji |

**User Guide:**

1. **System Requirement:**

|  |  |  |
| --- | --- | --- |
| **No** | **Items** | **Descriptions** |
| 1. | Operating System | Windows 7 or Higher |
| 2. | Software | Java SE 8 and NetBeans 8 |
|  |  |  |

1. **Install and Run Application:**

**Step 1:** Download and Install NetBeans 8.

**Step 2:** Execute the Application.