**Lab #6**

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Author’s Note

This project report was prepared for CMSC 203 CRN #30672, taught by professor Ahmed Tarek

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**Task #1**

/\*\*

\*The purpose of this class is to compute different function values for a real value x

\*@Author Josue Ponce

\*@Date 3/19/18

\*@version 1.0

\*/

**public** **class** **Function**{

/\*\*

\* Holds the function's value.

\*/

**private** **double** FUNCTION\_CHOICE;

/\*\*

\* Holds the Description of the function

\*/

**private** String description;

/\*\*

\* Regular constructor that initializes the choice of the function to compute

\* @param fnChoice

\*/

**public** **Function**(**int** fnChoice){

//.... body

}

/\*\*

\* returns the function choice

\* @return the function of choice

\*/

**public** **int** **getFunctionChoice**(){

//.... body

}

/\*\*

\* Sets the description of a function.

\*/

**public** **void** **setDescription**(){

//.... body

}

/\*\*

\* returns the description with function choice

\* @param fnChoice

\* @return the description of the chosen function.

\*/

**public** **static** String **getDescription**(**int** fnChoice){

//.... body

}

/\*\*

\* @return the description string

\*/

**public** String **toString**(){

//.... body

}

/\*\*

\* evaluates the function value for the parameter x

\* @param x

\* @return the calculated results based on the function choice.

\*/

**public** **double** **computeFunctionValue**( **double** x){

//.... body

}

}

**Task #2 & #3**

/\*\*

\*The purpose of this class is to compute different function values for a real value x

\*@Author Josue Ponce

\*@Date 3/19/18

\*@version 1.0

\*/

**public** **class** **Function**{

/\*\*

\* Holds the function's value.

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**private** **double** FUNCTION\_CHOICE;

/\*\*

\*Holds the Description of the function

\*/

**private** String description;

/\*\*

\* Regular constructor that initializes the choice of the function to compute

\* @param fnChoice

\*/

**public** **Function**(**int** fnChoice){

FUNCTION\_CHOICE=(**double**)fnChoice;

setDescription();

}

/\*\*

\* returns the function choice.

\* @return the function of choice.

\*/

**public** **int** **getFunctionChoice**(){

**return** (**int**)FUNCTION\_CHOICE;

}

/\*\*

\* Sets the description of a function.

\*/

**public** **void** **setDescription**(){

**if**(FUNCTION\_CHOICE ==**1.0**) {

description="(8x-sqrt(x))/(x^3-7x^2+15x-9)";

}

**else** **if** (FUNCTION\_CHOICE ==**2.0**) {

description="sin(x)";

}

**else** **if** (FUNCTION\_CHOICE ==**3.0**) {

description="(5/x)+35";

}

**else** **if** (FUNCTION\_CHOICE ==**4.0**) {

description="(sqrt(x^3+16)-4)/(x^2)";

}

**else** **if** (FUNCTION\_CHOICE == **5.0**) {

description="(e^x-1)/x";

}

}

/\*\*

\* returns the description with function choice

\* @param fnChoice

\* @return the description of the chosen function.

\*/

**public** **static** String **getDescription**(**int** fnChoice){

**if**(fnChoice ==**1**) {

**return** "(8x-sqrt(x))/(x^3-7x^2+15x-9)";

}

**else** **if** (fnChoice ==**2**) {

**return** "sin(x)";

}

**else** **if** (fnChoice ==**3**) {

**return** "(5/x)+35";

}

**else** **if** (fnChoice ==**4**) {

**return** "(sqrt(x^3+16)-4)/(x^2)";

}

**else** **if** (fnChoice == **5**) {

**return** "(e^x-1)/x";

}

**else**

**return** "";

}

/\*\*

\*@return the description string

\*/

**public** String **toString**(){

**return** description +" for "+FUNCTION\_CHOICE;

}

/\*\*

\* evaluates the function value for the parameter x

\* @param x

\* @return the calculated results based on the function choice.

\*/

**public** **double** **computeFunctionValue**( **double** x){

**if**(FUNCTION\_CHOICE==**1.0**)

**return** (**8**\*x-Math.sqrt(x))/(Math.pow(x,**3**)-**7**\*Math.pow(x,**2**)+**15**\*x-**9**);

**else** **if** (FUNCTION\_CHOICE ==**2.0**)

**return** Math.sin(x);

**else** **if** (FUNCTION\_CHOICE ==**3.0**)

**return** (**5**/x)+**35**;

**else** **if** (FUNCTION\_CHOICE ==**4.0**)

**return** (Math.sqrt(Math.pow(x,**3**)+**16**)-**4**)/Math.pow(x,**2**);

**else** **if** (FUNCTION\_CHOICE == **5.0**)

**return** (Math.pow(Math.E,x)-**1**)/x;

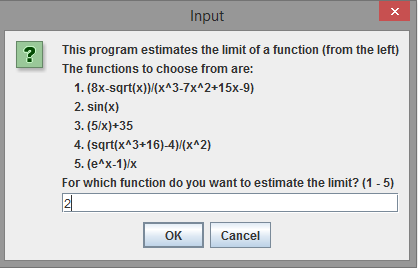
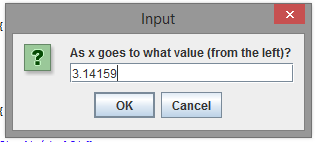
**else**

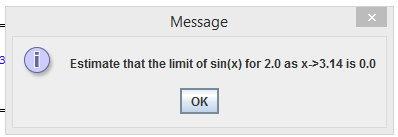
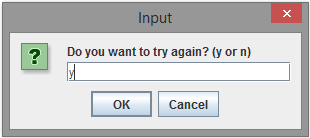
**return** **0.0**;

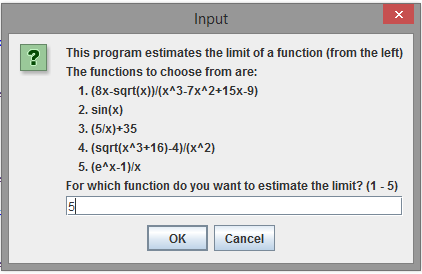
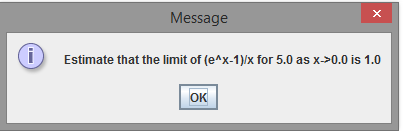
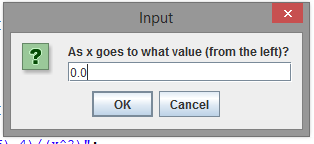
}

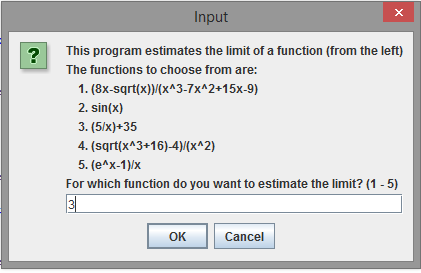
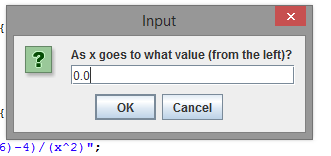
}

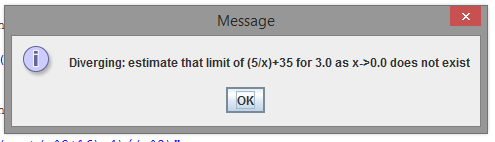
**Task #4 – Running Application**

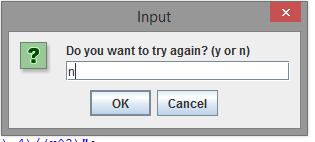
 





**Function.Java Code**

/\*\*

\*The purpose of this class is to compute different function values for a real value x

\*@Author Josue Ponce

\*@Date 3/19/18

\*@version 1.0

\*/

**public** **class** **Function**{

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\*Holds the Description of the function

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**private** String description;

/\*\*

\* Regular constructor that initializes the choice of the function to compute

\* @param fnChoice

\*/

**public** **Function**(**int** fnChoice){

FUNCTION\_CHOICE=(**double**)fnChoice;

setDescription();

}

/\*\*

\* returns the function choice.

\* @return the function of choice.

\*/

**public** **int** **getFunctionChoice**(){

**return** (**int**)FUNCTION\_CHOICE;

}

/\*\*

\* Sets the description of a function.

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**public** **void** **setDescription**(){

**if**(FUNCTION\_CHOICE ==**1.0**) {

description="(8x-sqrt(x))/(x^3-7x^2+15x-9)";

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\* returns the description with function choice

\* @param fnChoice

\* @return the description of the chosen function.

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**public** **static** String **getDescription**(**int** fnChoice){

**if**(fnChoice ==**1**) {

**return** "(8x-sqrt(x))/(x^3-7x^2+15x-9)";

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}

**else**

**return** "";

}

/\*\*

\*@return the description string

\*/

**public** String **toString**(){

**return** description +" for "+FUNCTION\_CHOICE;

}

/\*\*

\* evaluates the function value for the parameter x

\* @param x

\* @return the calculated results based on the function choice.

\*/

**public** **double** **computeFunctionValue**( **double** x){

**if**(FUNCTION\_CHOICE==**1.0**)

**return** (**8**\*x-Math.sqrt(x))/(Math.pow(x,**3**)-**7**\*Math.pow(x,**2**)+**15**\*x-**9**);

**else** **if** (FUNCTION\_CHOICE ==**2.0**)

**return** Math.sin(x);

**else** **if** (FUNCTION\_CHOICE ==**3.0**)

**return** (**5**/x)+**35**;

**else** **if** (FUNCTION\_CHOICE ==**4.0**)

**return** (Math.sqrt(Math.pow(x,**3**)+**16**)-**4**)/Math.pow(x,**2**);

**else** **if** (FUNCTION\_CHOICE == **5.0**)

**return** (Math.pow(Math.E,x)-**1**)/x;

**else**

**return** **0.0**;

}

}