

In this project, we develop a system that can make differentiation of function of x ($f(x)$). To develop this system, we use java programming language. To develop this system, we had to create seven classes. Each class is responsible for particular and unique task. These classes are interrelated and intercommunicate for manipulating data . Description of these classes are given below:

1. Main Class
2. Parting Class
3. $x_to_the_power_n$ class
4. log Class
5. UV Class
6. Trigonometry Class
7. Simplification

1.Main Class: Here, we take input from users, send data to another class named parting.

2.Parting Class: It makes partition in the function and sends sub function to suitable function.

Example: $2x^2+5x^5+\sin x$

It makes three parts $2x^2$, $5x^5$ and $\sin x$. First 2 parts will be sent to $x_to_the_power_n$ class as for algebraic nature and other part will be sent to Trigonometry class.

3. $x_to_the_power_n$ class : It makes solution to ax^n . Its differential function is $nax^{(n-1)}$. It returns this to Parting Class.

4. log Class : It makes solution to $\log x$. Its differential solution is $1/x$. log Class returns this to Parting Class.

5.UV Class : It makes solution to uv . Here u and v are both functions of x . Its solution is $u*dv/dx + v*du/u$.

6. Trigonometry Class: It makes solution to all trigonometric function. They are $\sin x$, $\cos x$, $\tan x$, $\cot x$ etc. Solution of $\sin x, \cos x, \tan x, \cot x$ are $\cos x, -\sin x, (\sec x)^2, -\operatorname{cosec} x, \cot x$ respectively. Solutions of this type of function are found in this class and return to Parting

7. Simplification: Its task is to simplify function. If $5 \cdot 6 \cdot x^5$ is found, it will make $30x^5$.