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:

- Main Class
- Parting Class
- x_to_the_power_n class
- log Class
- UV Class
- Trigonometry Class
- 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+sinx

It makes three parts 2x^2, 5x^5 and sinx. 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 logx. 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 sinx, cosx, tanx, cotx etc. Solution of sinx, cosx, tanx, cotx are cosx, -sinx, (secx)^2, cosecx.cotx 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*6*x^5 is found, it will make 30x^5.

Cautions:

Avoid giving any space in input.