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**GRAPHMASTER**

**A Java Application for Graphing Mathematical Functions**

**Submitted by**

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**UNIVERSITY VISION STATEMENT**

**Excellence and Service**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**VISION**

To fortify Ethical Computational Excellence

**MISSION**

* Imparts core and contemporary knowledge in the areas of Computation and Information Technology
* Promotes the culture of research and facilitates higher studies
* Acquaints the students with the latest industrial practices, team building and entrepreneurship
* Sensitizes the students to serve for environmental, social & ethical needs of society through lifelong learning.

**ABSTRACT**

The GraphMaster project aims to develop a Java application for graphing mathematical functions. The application can plot 2D graphs for functions such as linear, quadratic, trigonometric, and exponential functions. The user-friendly interface allows users to enter the function and range of values to be plotted. The application uses Java concepts such as Exception Handling, Event Handling, and Swings to implement the calculator functionality and provide a smooth user experience.

**REQUIREMENT SPECIFICATION**

**INTRODUCTION**

The GraphMaster project aims to develop a Java-based application for graphing mathematical functions. The application uses Java concepts such as Exception Handling, Event Handling, and Swings to provide a user-friendly interface and smooth user experience.

**SCOPE**

This project aims to develop an application capable of graphing various mathematical functions in 2D space. The application is developed using Java and is platform-independent, allowing users to run it on different operating systems.

**FUNCTIONAL REQUIREMENTS**

* The application allows users to enter mathematical functions such as linear, quadratic, trigonometric, and exponential functions.
* The application is capable of plotting 2D graphs for the entered functions.
* The application allows users to set the range of values to be plotted for the entered functions.
* The application provides a user-friendly interface allowing users to enter the functions and ranges quickly.
* The application can display the plotted graphs in a separate window or panel.
* The application can save the plotted graphs in standard image formats such as PNG or JPG.

**NON-FUNCTIONAL REQUIREMENTS**

* The application is developed using Java and is platform-independent.
* The application is easy to use and has a user-friendly interface.
* The application is efficient and capable of graphing functions in a reasonable amount of time.
* The application handles errors and exceptions gracefully, providing appropriate error messages to the users.

**ASSUMPTIONS AND DEPENDENCIES**

• The application assumes that the user has basic knowledge of mathematical functions and 2D graphs.

• The application depends on the availability of the Java Runtime Environment (JRE) on the user's system.

• The application depends on the availability of a modern web browser to access online documentation and support resources.

**WORKING DESCRIPTION**

GraphMaster is a Java-based application with a user-friendly interface for graphing various mathematical functions in 2D space. Its purpose is to provide a powerful tool for students, researchers, and professionals in multiple fields of science and engineering.

Upon launching the application, users are presented with a window containing fields to enter the mathematical function and the range of values to be plotted. Functions can be entered using standard mathematical notation, such as y = sin(x) or y = 2x + 3. GraphMaster can plot various functions, including linear, quadratic, trigonometric, and exponential functions.

Users can set the range of values to be plotted for the entered function, and the application will display the corresponding graph in a separate window or panel. The interface is designed to be user-friendly, with options to save the plotted graphs in standard image formats such as PNG or JPG.

GraphMaster is platform-independent and developed using Java, allowing users to run it on different operating systems. It is efficient and capable of graphing functions in a reasonable amount of time. The application provides appropriate error messages to the users in case of errors or exceptions.

In summary, GraphMaster is a valuable tool that simplifies graphing various mathematical functions, making it useful for students, researchers, and professionals in various fields.

**SNAPSHOTS**

**CONCLUSION**

**REFERENCES (Papers/ Books/ Websites etc.)**