COURSE PROJECT DOCUMENTATION

CS 101 PROJECT

GRAPH PLOTTER
& CALCULATOR

TEAM : 403

VINEET MANGAL 140040028

SUBHRANGSU SAHA 140040088

GAURAV AGRAWAL 140040018

KRISHNA PAL   140040048

Contents

- INTRODUCTION

- PROBLEM STATEMENT

- REQUIREMENTS

- IMPLEMANTATIONS

- TESTING STRATEGY OR DATA

- DISCUSSION OF SYSTEMS

- FUTURE WORK

- CONCLUSION

- REFERENCE

- PROJECT SCREENSHOTS

1. INTRODUCTION

NOW A DAYS, IN HIGHER STUDIES OF ENGINEERING AND VARIOUS FEILDS, GRAPH IS USED AS ANALYSIS.

AS WE ALL KNOW, PLOTTING EVERY FUNCTION MANUALLY TAKES A LOT OF TIME AND ITS A CUMBERSOME WORK. AND FOR SOME OF THE FUNCTIONS WE CAN NOT EVEN PLOT THE GRAPH MANUALLY.

FOR THIS WE NEED A SOFTWARE WHICH CAN PLOT THE GRAPH OF THAT FUNCTION JUST BY ENTERING THE FUNCTION WHICH WILL MAKE OUR ANALYSIS EASY.

THIS PROGRAM SKETCHES VARIOUS TYPES OF THE MATHEMATICAL FUNCTIONS. ADDITIONALLY IT INCLUDES A STANDARD CALCULATOR FOR CALCULTIONS AND OPERATIONS.

2. PROBLEM STATEMENT

AIM OF THIS PROJECT IS TO MAKE A USER FRIENDLY GRAPH PLOTTER USING C++ IN WHICH WE CAN PLOT MULTIPLE GRAPHS IN A SINGLE WINDOW AND CAN GET THE CO-ORDINATES OF ANY DESIRED POINT.

ALTHOUGH WE HAVE NOT PLANNED TO MAKE CALCULATOR AND WE HAVE NOT MENTIONED IN THE SRS ABOUT CALCULATOR, BUT WE HAVE INCLUDED CALCULATOR IN ADDITION TO THE GRAPH PLOTTER.

3. REQUIREMENTS :

A) HARDWARE REQUIREMENTS

1) MOUSE (TO GET CO-ORDINARTES OF A POINT)
2) KEYBOARD (FOR INPUT)
3) MONITOR (TO SEE WHAT'S HAPPENING)
4) A GOOD PROCESSOR
5) ATLEAST 512 MB RAM
6) ATLEAST 128GB HARD DISK

B) SOFTWARE REQUIREMENTS

1)CODE BLOCKS EP (IF YOU ARE RUNNING CODE)

2) WINDOWS XP AND ABOVE VERSION

3) COMMAND PROMPT

4. IMPLEMTNTATION

A). FUNTIONALITY

1). FIRSTLY, WE ADDED KOOLPLOT LIBRARY TO MAKE OUR WORK EASIER OF DRAWING GRAPHS.

2). THEN AFTER WE MADE AN INTERFACE FOR INPUT OF OUR CHOICES.

3). THEN WE COMBINED THE CALCULATOR WITH OUR KOOLPLOT PROJECT TO MAKE GRAPHS DIRECTLY FROM THST WINDOW ONLY.

4). THEN WE HAD WRITTEN THE CODE FOR DRAWIG MULTIPLE GRAPHS.

5. TESTING STRATEGY AND DATA :

1) FOR PROGRAM TESTING, FIRSTLY DRAW THE GRAPH OF SOME SIMPLE FUNCTIONS LIKE sin(x). YOU WILL SEE A WINDOW IN WHICH GRAPH OF sin(x) IS THERE.

2) FOR GETTING CO-ORDINATES OF SOME POINT, CLICK ON THE THAT POINT, YOU WILL SEE THE CO-ORDIANTES OF THAT POINT AT THE TOP OF THAT WINDOW.

3) . FOR CHECKING CALCULATOR, JUST INPUT THE CHOICE YOU WANT TO CHECK. AFTER THAT YOU CAN PROCEED ACCORDINGLY AS INSTRUCTIONS ARE GIVEN.

4) . FOR MORE HELP, RUN THE PROGRAM AND PRESS 1 FOR HELP. YOU WILL SEE THE HELP SECTION.

6. DISCUSSION OF SYSTEM :

A) WHAT ARE WORKED AS PER PLAN ?

1). DRAWING GRAPHS OF FUNCTIONS.

2). DRWAING MULTIPLE GRAPHS IN A SINGLE WINDOW.

3). MULTIPLE GRAPHS CAN BE IN DIFFERENT COLORS FOR BETTER ANALYSIS.

4). CO-ORDINATES CAN BE OBTAINED JUST BY CLICKING AT A DESIRED POINT.

B) WHAT WE ADDED MORE THAN WE DISCUSSED IN SRS ?

1). A STANDARD CALCULATOR IS ADDED FOR CALCULATIONS.

2.) CALCULATOR INCLUDES NOT ONLY THE BASIC CALCULATIONS, BUT ALSO SOME ADDITIONAL FUNCTIONS LIKE MATRIX OPERATIONS, VECTOR OPERATIONS etc.

3). IT ALSO INCLUDES THE OPTION EQUATION OF A PLANE WHICH GIVES THE EQUATION OF A PLANE IF 3 POINTS ARE KNOWN OR ELSE NORMAL VECTOR OF THE PLANE ARE GIVEN AND MANY MORE OPTIONS.

C)   CHANGES MADE IN PLAN

1). AT FIRST, WE DECIDED TO MAKE AN INTERFACE FOR ENTERING THE FUNCTION BUT UNFORTUNATELY WE ARE NOT ABLE TO DO THAT. SO WE WILL JUST ENETRED THE FUNCTION ON TERMINAL WINDOW.
2). IN STARTING WE DECIDED TO MAKE GRAPH OF ANY FUNCTION BUT WE COULD NOT MAKE IT POSSIBLE AS IT NEEDS SOME EXTRA CONCEPTS IN CS LIKE EXPRESSION PARSING AND MANY MORE.
3). FOR COMPENSATING THIS, WE ADDED A CALCULATOR FOR CALCULATIONS.

7. FUTURE WORK

1). THIS GRAPH PLOTTER CAN BE EXTENDED TO 3D GRAPH PLOTTER BY EXTENDING THE COMPONENTS OF THE LIBRARY.

2).AFTER APPLYING EXPRESSION PARSING TO IT, A COMPLETE 2D GRAPH PLOTTER CAN BE MADE SO THAT IT CAN BE USED COMMERCIALLY.

3). BY ADDING MORE OPTIONS TO THE CALCULATOR, IT CAN BE CONVERTED TO COMPLETE SCIETIFIC CALCULTOR AND CAN BE USED COMMERCIALLY.

8. CONCLUSIONS :

FINALLY, WE MADE A PROGRAM TO DRAW GRAPHS AND STANDARD CALCULATOR. GRAPHS OF SOME STANDARD FUNCTIONS CAN BE PLOTTED USING THIS PROGRAM AND CO-ORDINATES CAN BE OBATINED JUST BY CLICKING AT DESIRED POINT. STANDARD CALCULATOR CAN DO SOME OF THE CALCULATIONS.

9. REFERENCE :

1.) CODE BLOCKS EP SETUP DOWNLOAD LINK

http://codeblocks.codecutter.org/setup.exe

2) CODE BLOCKS INSTALLATION AND MAKING OF A KOOLPLOT PROJECT

https://www.youtube.com/watch?v=BFBN6bNk0f4

10)PROJECT SCREENSHOTS