

National University of Computer & Emerging Sciences  
Karachi Campus



Project Report  
Programming Fundamentals  
Section: I

# **CALCULATOR PLUS PLUS**

Group Members:  
18k-1148 Uzair Ali  
18k-0200 Muhammad Usama

## Introduction

We have developed a scientific Calculator that is also capable of plotting graphs from a given polynomial equation.

## Existing System

We have seen many scientific calculator like the one which is in our study bag. This idea of building scientific came from that calculator that we use.

## Problem Statement

We have seen many scientific calculators but none of them was capable of solving equations and plot a graph from that equation.

## Proposed Solution

We are designing a calculator which can perform all scientific operations plus it will plot graphs from a given equation

## Salient Features

### Applications Of Graph Plotting

1. Our program can recognize the plane of the graph by lighting up the quadrant in which the point we entered lies.
2. By entering any two points we can find out the midpoint and can represent it on a graph.
3. Verification of points on graph if the distance and a point is entered in our program.
4. our program can find out the intersection of the two lines and show us by plotting a graph.
5. We can find out distance between any two points entered by the user. This is also Represented on graph plane.
6. By entering the coordinates of the centre point and the radius of the circle, Our program can sketch the a circle and show its radius line.
7. By entering the values of axis (h,k)&a ..here (h.k) represent the axis of parabola and 'a' represents focus of parabola our program can plot parabola on the plane.
8. By entering the values of axis (h,k)&a ( (h.k) represent the axis of hyperbola and 'c' represents focus of hyperbola and 'a' represents major axis whereas 'b' represents minor axis of hyperbola) our program can plot hyperbola based on the values mentioned above.
9. Our calculator can also plot graphs from maximum 4<sup>th</sup> degree and minimum 1<sup>st</sup> degree polynomial equation

### Applications Of Scientific Calculator

This program consists of all the functions that a hand held scientific calculator possesses

## Tools & Technologies

Programming language used is C  
Operating system used is windows 10 64 bit  
Turboc++ is used as our compiler

## PHOTO GALLERY

### 1 MAIN MENUE

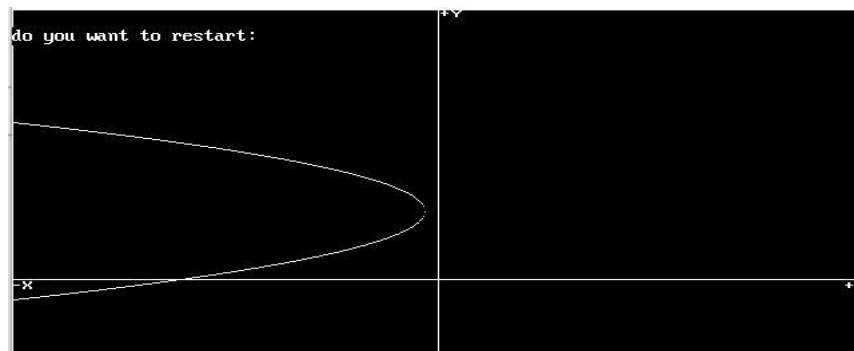
2

```
welcome          Tue Dec 11 03:10:16 2018
|
|*****
|press 1 for loction on the plane
|press 2 to find distance
|press 3 to find midpoint
|press 4 to verify 2 points when distace is given
|press 5 to find point of intersection of the two lines
|press 6 to find slope of two points
|press 7 to find angle between two lines
|press 8 to draw circle
|press 9 to draw parabola
|press 10 to draw ellipse
|press 11 to draw hyperbola
|press 12 to draw a graph from polynomial
|press 13 to enter into scientific calculator module
|press 14 to exit from program
|enter your choice now
|
```

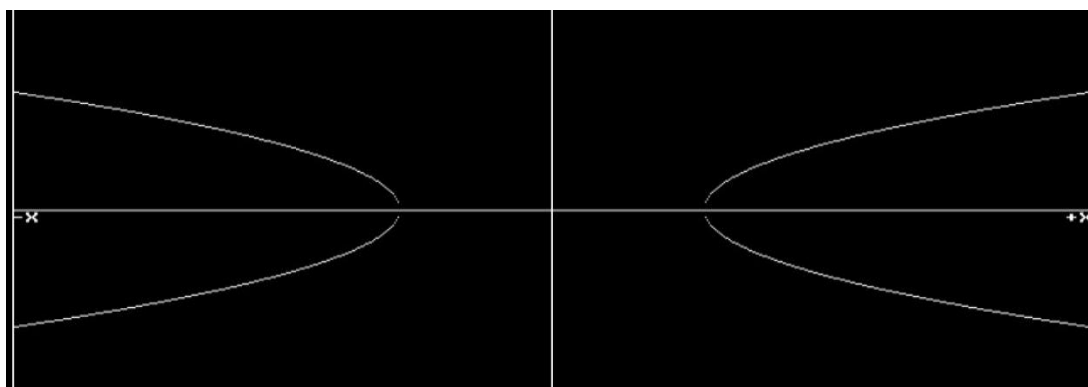
### SCIENTIFIC CALCULATOR MENUE

```
WELCOME TO SCIENTIFIC CALCULATOR MODULE
press 1 for addition
press 2 for subtraction
press 3 for multiplication
press 4 for division
press 5 to find factorial
press 6 to find log
press 7 to find sin(x)
press 8 to find cos(x)
press 9 to find tan(x)
press 10 to find cot(x)
press 11 to find sec(x)
press 12 to find cosec(x)
press 13 to find sin-1(x)
press 14 to find cos-1(x)
press 15 to find tan-1(x)
press 16 to find nCr
press 17 to find nPr
press 18 to find determinant of a matrix (2x2) or (3x3)
press 19 to check weather given matrix is identity matrix or not
press 20 to find transpose of a matrix
press 21 to go back
press 22 to exit
enter your choice
```

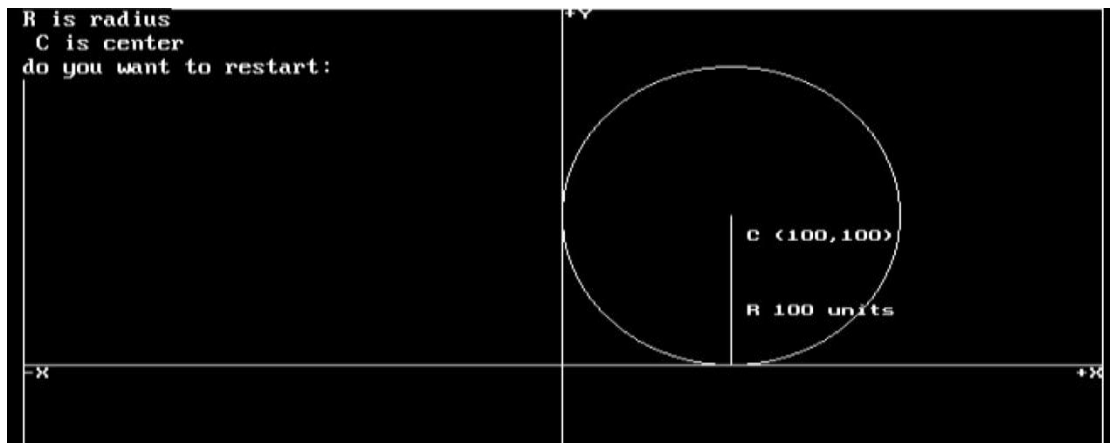
### 3 PARABOLAS



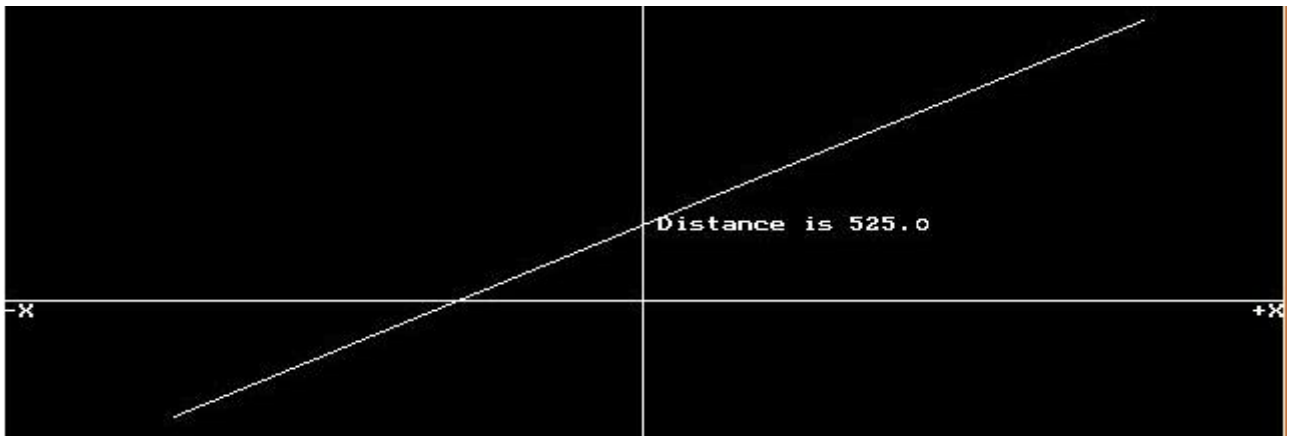
### 4 HYPERBOLAS



## 5 CIRCLE



## 6 DISTANCE BETWEEN TWO POINTS



## 7 INTERSECTION OF TWO LINES USING THEIR EQUATIONS

(OUR GRAPH (BLACK WINDOW) AND DESMOS BEHIND)

