Department of Information Technology

Government Polytechnic, Awasari (kh)

Tal-Ambegoan Dist-Pune 412405

2021-2022

A Micro Project Report

On

"MATHEMATICAL EQUATION SOLVING SOFTWARE"

Information Communication and Technology

Submitted By

Sr. No.	Roll Number	Name of Students	Enrollment Number
1	20IF231	PATHARE PRANALI	2010510378
2	20IF232	PATIL ANANT	2010510379
3	20IF233	PATIL SHERYA	2010510380
4	20IF234	PATIL TEJAS	2010510381
5	20IF235	PAWAR DARSHAN	2010510382
6	20IF236	PETKAR PURVA	2010510383

Under the Guidance of

Ms.P.C.Fafat.

A
Micro-Project Report
On
2021-22

Submitted in partial fulfilment of the requirements

"MATHEMATICAL EQUATION SOLVING SOFTWARE"

For the award of the course of

Diploma of Engineering

In

Information Technology

By

Sr. No.	Roll Number	Name of Students	Enrollment Number
1	20IF231	PATHARE PRANALI	2010510378
2	20IF232	PATIL ANANT	2010510379
3	20IF233	PATIL SHERYA	2010510380
4	20IF234	PATIL TEJAS	2010510381
5	20IF235	PAWAR DARSHAN	2010510382
6	20IF236	PETKAR PURVA	2010510383

Under the guidance of

.....	.....	.....
Ms. P.C.Fafat	**Dr. D.N. Rewadkar**	**DR. D. R.Nandanwar**
Guide	**HOD**	**Principal**

Group Leader : Tejas patil.

Date: .....

Part -A Micro-Project Proposal

TITLE OF THE MICRO-PROJECT: MATHEMATICAL EQUATION SOLVING SOFTWARE.

Aim/Benefit :

The aim of the course is to help the student to affiant following industry identify compendancy through various teaching, learning experience. The main goal in teaching mathematical problem solving is that students develop a generic ability to solve real life problems and apply mathematics in real life situations. Problem solving can also be used, as a teaching method, for a deeper understanding of concepts. It reduces the workload of management as most of the manual work done is reduced.

Course Outcomes Addressed :

a) Select suitable software process model for software development.

b) Prepare Software requirement specification.

c) Use software modelling to create data designs.

3.0 Proposed Methodology :

First of all we have to select the topic, mathematical equation solving. software.We collected information about the topic using sources such as books and Internet. Then we type the required part-A and done proper page set up and submitted to subject teacher. After the setup of part-A We paper a report about our project. After finishing all the typing we arrange all the data in proper arrangement. We selected proper margin font, lay out, 4A size etc. at last we got the printouts of the micro- project and submitted to subject teacher.

4.0 Action Plan :

S. No.	Details of activity	Planned Start date	Planned Finish date	Name of Responsible Team Members
1	Topic Selection			PHATHARE PRANALI
2	Abstract			PETKAR PURVA
3	Mini Project Proposal			PATIL SHERYA
4	Topic Finalization			PATIL TEJAS
5	Details literature review			PAWAR DARSHAN
6	Testing and Debugging			PATIL TEJAS
7	Report Documentation			PATIL ANANT
8	Project Finalization			PATIL ANANT

5.0 Resources Required :

S. No.	Name of Resource/material	Specifications	Qty.	Remarks
1	Laptop system	Windows 7/Above	1	
2	Software	Enterprises	1	

6.0 Names of Team Members with Roll No :

Sr. No.	Roll Number	Name of Students	Enrollment Number
1	20IF231	PATHARE PRANALI	2010510378
2	20IF232	PATIL ANANT	2010510379
3	20IF233	PATIL SHERYA	2010510380
4	20IF234	PATIL TEJAS	2010510381
5	20IF235	PAWAR DARSHAN	2010510382
6	20IF236	PETKAR PURVA	2010510383

****

Part – B Micro-Project Report

MATHEMATICAL EQUATION SOLVING SOFTWARE

1.0 Rationale :

This lesson is important because students need to understand that math is everywhere. Eventually they will have to solve a math problem in the "real world." It is beneficial for them to know that math has real life applications. Geologists, as well as other various experts, make these types of calculations every day. As an Engineering student we always need to deal with the mathematical expressions and their solutions. Many times during solving the expressions our solution gets wrong or we have quite confusion about our solution then we try to find the solution of that expression using "google.com" but we can't.

2.0 Aim/Benefits of the Micro-Project :

Aim: mathematical equation solving software.

Benefits:

- Save cost
- Save time
- To reduce people's haphazard.
- The software should be simple to grasp and easy to use the usual arithmetic functions and exponential.
- This software calculates math problems with the cameras quickly and accurately.
- It can solve the problems such as exponential , integrations , logarithms , derivations and so on.
- It should also display the mathematical graphs based on the scanned equation.
- It should also save the calculation history, which makes easy for us to find difficult math problems.

3.0 Course Outcomes Addressed:

a) Select suitable software process model for software development.

b) Prepare Software requirement specification.

c) Use software modelling to create data designs.

4.0 literature review:

Now a day, human wants those software that can reduce effort of the people and very best for uses to understandable. Mathematical equation borrowing/returning system is a process of organizing important information, used to track items borrowed, and the scheduled time for returning. This system helps user or people who responsible in recording the data appropriately, it also saves time and more convenient to use that the traditional manual recording.

5.0 Actual Methodology Followed:

First of all, we have to select topic report for Design UML diagrams For mathematical equation solving software. The teacher will ask the student to prepare, develop a report on mathematical equation solving software. We collect the information about the topic such as internet and books. Then we have to do to teacher about Design UML diagrams For mathematical equation solving software on which we are going to prepare micro project report. After the setup of part-A prepared the report about the Design UML diagrams for mathematical equation solving software After doing all the typing we arranged the all data in proper arrangement. We select proper arrangement font, layout etc. At last we got Principle outcomes of the micro project Part-A and submitted it to the Subject teacher.

6.0 Actual Resources Used:

S. No.	Name of Resource/material	Specifications	Qty	Remarks
1	PC	_	1	
2	Operating system	_	1	
3	Software for diagrams	Star UML	1	

7.0 Outputs of the Micro-Projects:

- We learn how to prepare the report on mathematical equation sloving software.
- Learn the relationship on mathematical equation solving software.

8.0 problem and its solution:

Problem :-

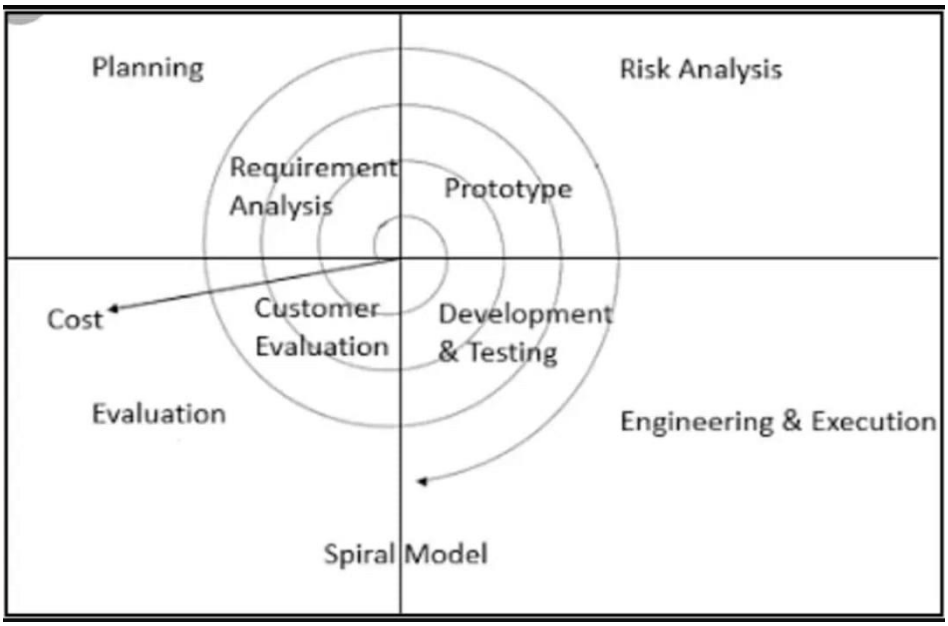
To find the solution of our mathematical expression we type our expression in Google search box , we get many solutions of it but we don't get the perfect solution of the expression and get the related solutions. Due to this we are not able to get the step-by – step procedure for solving the expression and due to this our confirmation for our solution is not found.

Solution :-

Hence, as we discussed about the problem for solution of mathematical expression we need a software that provide step – by – step procedure for solving mathematical expression in easy way.The software that is to be developed should provide the facility of typing as well as scanning the expression and should provide the result accordingly. It should not show only the single procedure to solve the expression

but show all the possible ways to solve it. So, it will become easy for us to understand step – by – step procedure and the easy way to solve it. This software should provide description of each step of solution which will help us to understand the procedure in detailed format.

9.0 Relevant process model :
Spiral model:



Why we used Spiral model?

We used spiral model because:

- Changes in spiral model can be done at a later stage
- Spiral model accommodates life-cycle evaluation, growth and requirement changes.
- It focuses on early error detection.
- It incorporates prototyping as a risk-reduction strategy.
- It incorporates software quality objectives into the product.
- In spiral model, cost estimation becomes easy as the prototyping building is done in small fragments.
- In spiral model there is always a space for customer feedback.

Requirements :

1)Functional Requirements:

A] Input Requirements-:

The software should not accept the wrong input when provided.

Either it should display the error box for the wrong equation.

The software should accept the scanned equation as well as the typed equation.

B] Output Requirements-:

a. The software should display the appropriate solution of the given equation.

b. It should display the solution by using step-by-step procedure and having appropriate comment with each line.

c. It should also display the other related solutions for the given equation.

C] Error-:a. The error in the software should occur when there is a wrong equation entered by the user.

b. The error message displayed should be simple so that it can be understand by the user.

2)Non-Functional Requirements:

A] Performance Requirement-:Software should work properly instead of the wrong equation is entered and should not get closed automatically if there is a wrong input provided.

B] Security Requirements-: Any equation that is to be solved in the software should get stored in the history management block so if any expression is misplaced then it can be recovered. And all the personal information entered while login through the user should not be accessible to any other user.

C] Avability Requirement-: The software should be available with all the types of equations that are to be entered by the user, it should also support the mathematical graphs for the entered equation.

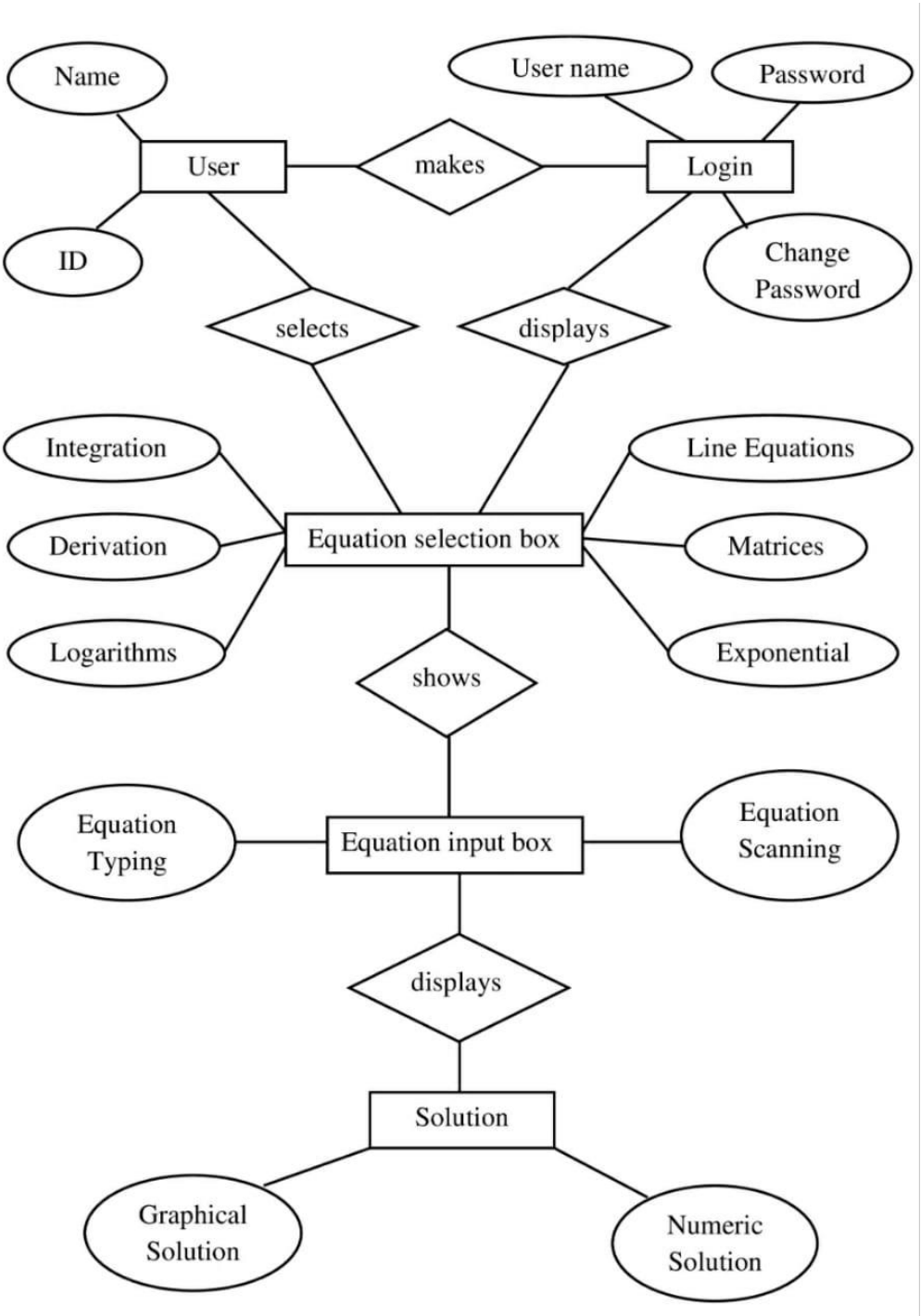
1)ER-Diagram:

An entity relationship diagram shows the relationships of entity sets stored in the database. An entity in this context is an object, a component of data. An entity set is the collection of similar entities. These entities can have attributes that define its properties.

By defining the entities, their attributes, and showing the relationships between them, an ER diagram illustrates the logical structure of databases.

An entity relationship diagram is a high level conceptual data model diagram. ER modeling helps us to analyze data requirements systematically to produce a well defined database. This diagram represents real-world entities and the relationships between them.

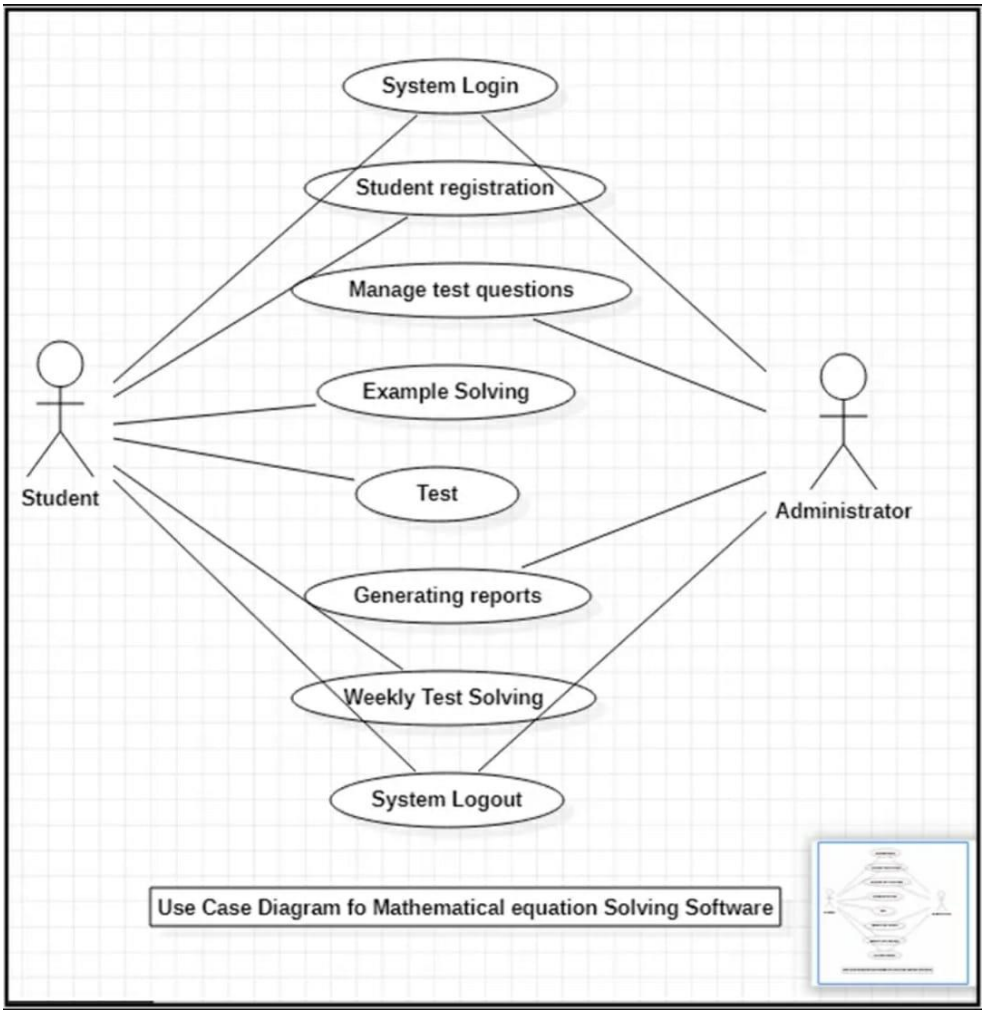
ER diagram include many specialized symbols, and its meaning makes this model unique. The purpose of ER diagram is to represent the entity framework infrastructure. The components used in the ER diagram are entity, entity set, relationships, attributes, cardinality, ER notations, etc


Name
User name
Password
User
makes
Login
ID
Change Password
selects
displays
Integration
Line Equations
Derivation
Equation selection box
Matrices
Logarithms
Exponential
shows
Equation Typing
Equation input box
Equation Scanning
displays
Solution
Graphical Solution
Numeric Solution

2)Use case diagram:

A use case diagram is a dynamic or behavior diagram in UML. Use case diagrams model the functionality of a system using actors and use cases. Use cases are set of actions, services and functions that the system needs to perform.

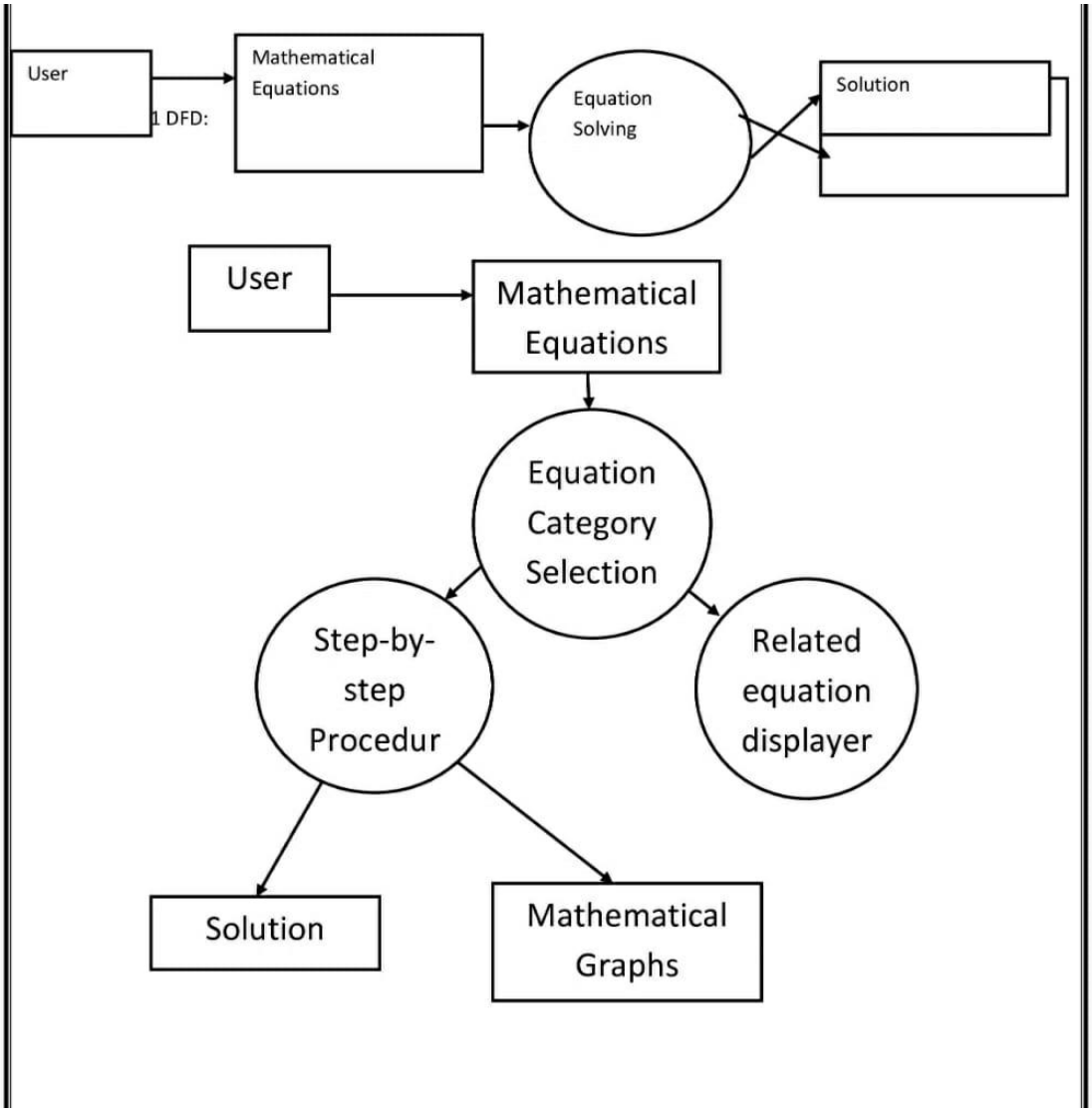
In this context, a “system” is something being developed or operator, such as a website. The “actors” are people or entities operating under defined roles within the system. Actors can be a human user, some internal applications or may be some external applications. Use case diagrams are drawn to capture the functional requirements of a system.



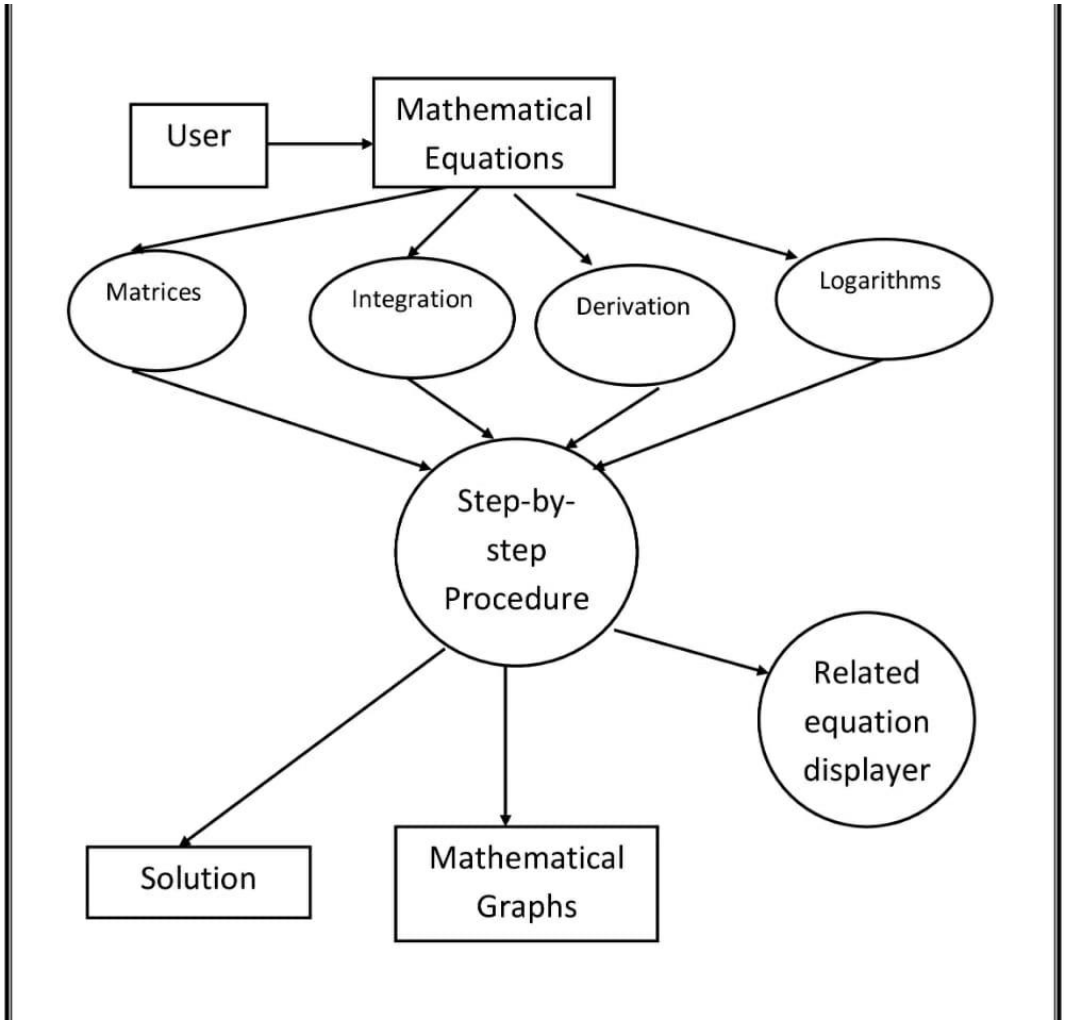
3)DFD Level 1:

A Data Flow Diagram is a graphical representation of the flow of data through an information system.DFD describes the processes that are involved in a system to transfer data from the input to the file storage and reports generation.

DFD uses defined symbols like rectangles , circles and arrows to show data inputs , outputs, storage points and the routes between each of the destination. A DFD is also known as a bubble chart or work flow diagram.

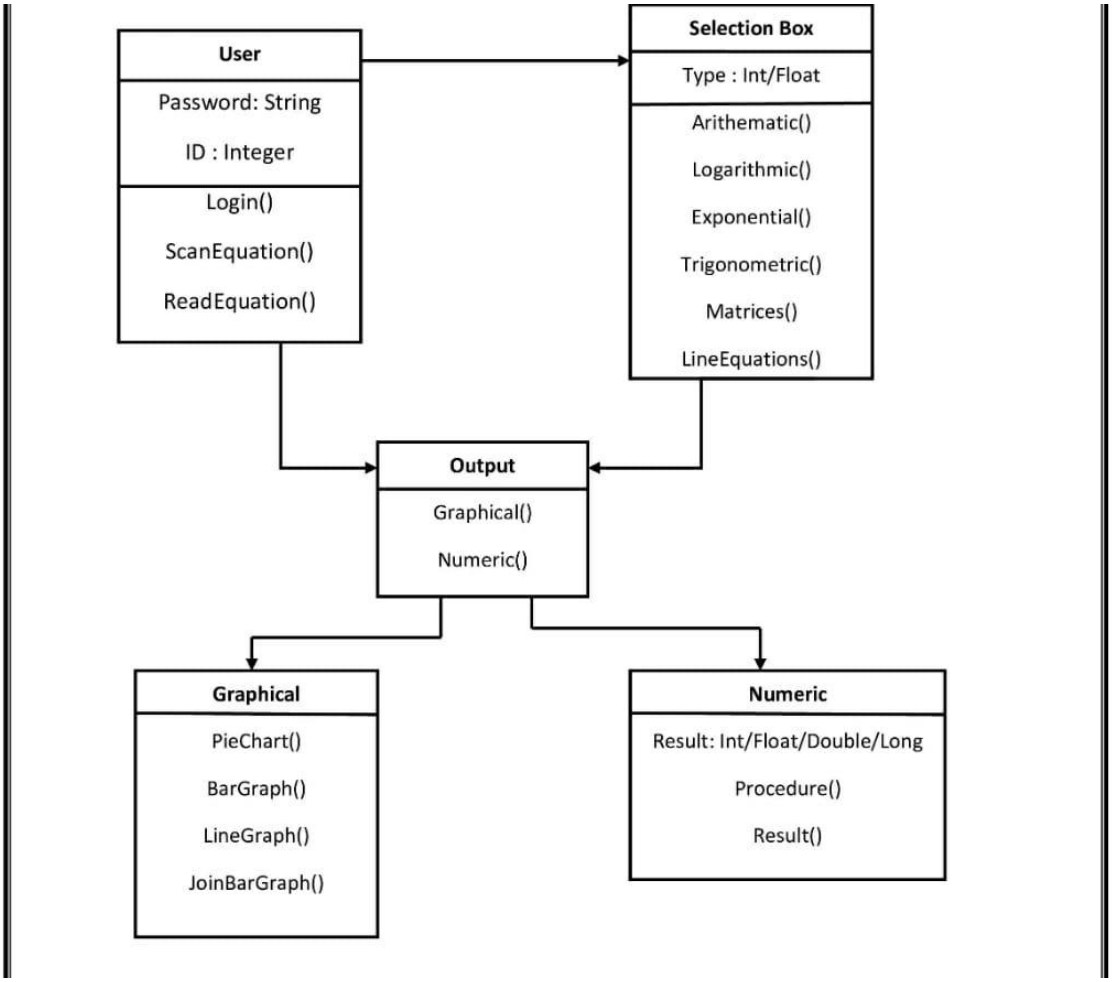


4)DFD Level 2:


User
Mathematical Equations
Matrices
Integration
Derivation
Logarithms
Step-by-step Procedure
Related equation displayer
Solution
Mathematical Graphs

5)Class diagram:

A class diagram is a Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system classes, their attributes, operations , methods and the relationships among objects.

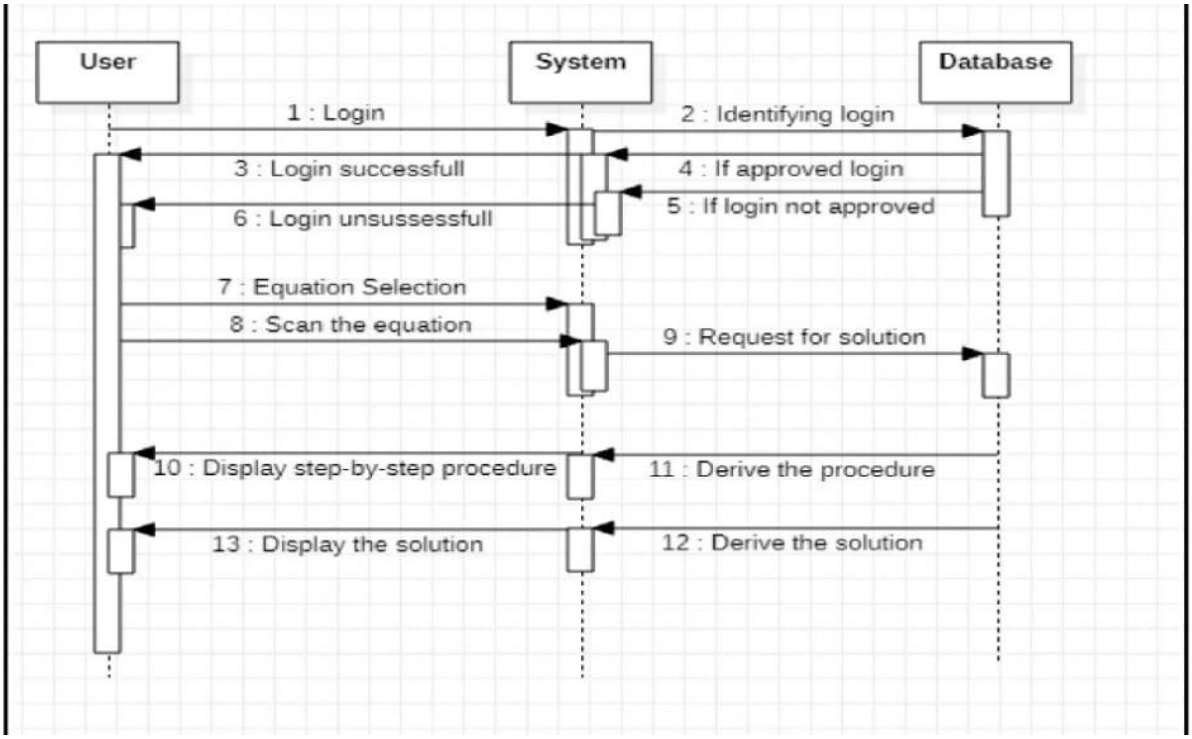


A class diagram gives us an overview of a system by showing its classes and the relationships among them. It display what interacts but not what happens when they do interact.

6)Sequence diagram:

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.

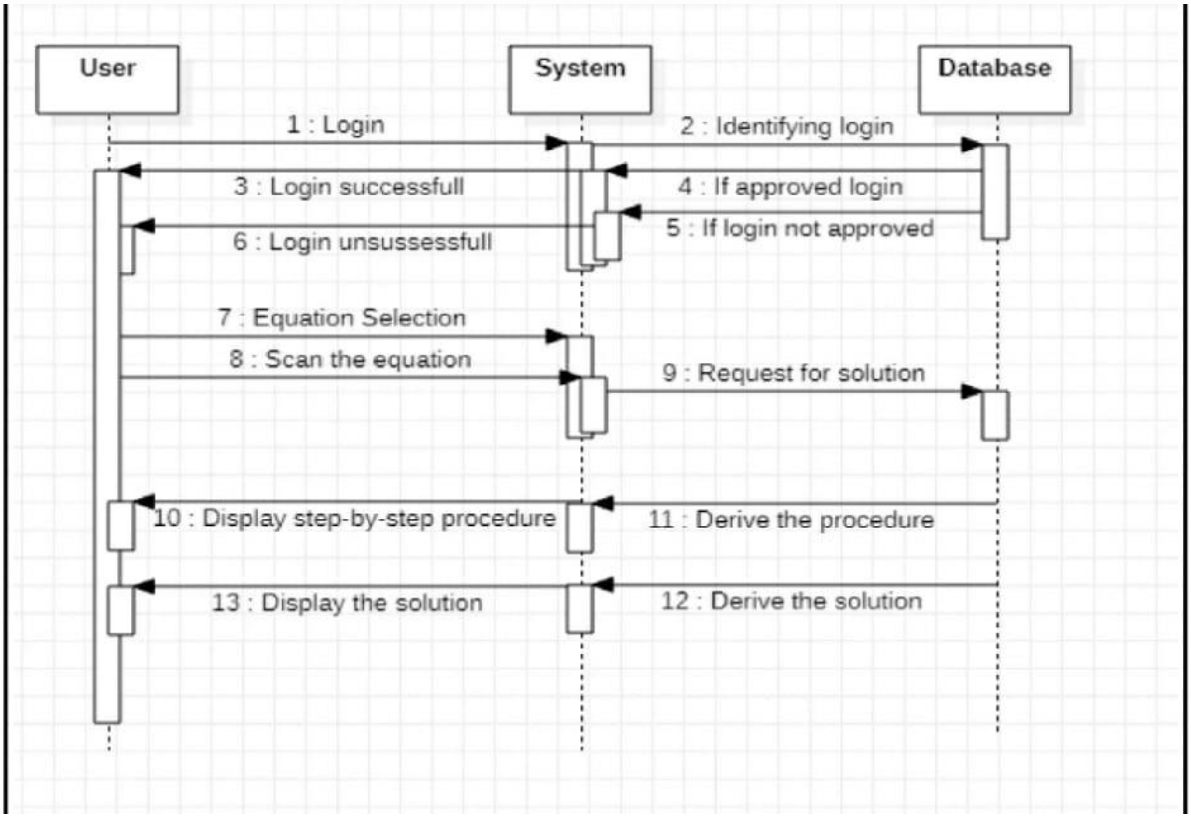
Sequence diagrams are typically associated with use cases realizations in the logical view of the system under development. This allows the specifications of simple runtime scenarios in a graphical manner



7)Collaboration diagram:

A collaboration diagram is also known as a communication diagram, is an illustration of the relationships and interactions among the software objects in the UML.

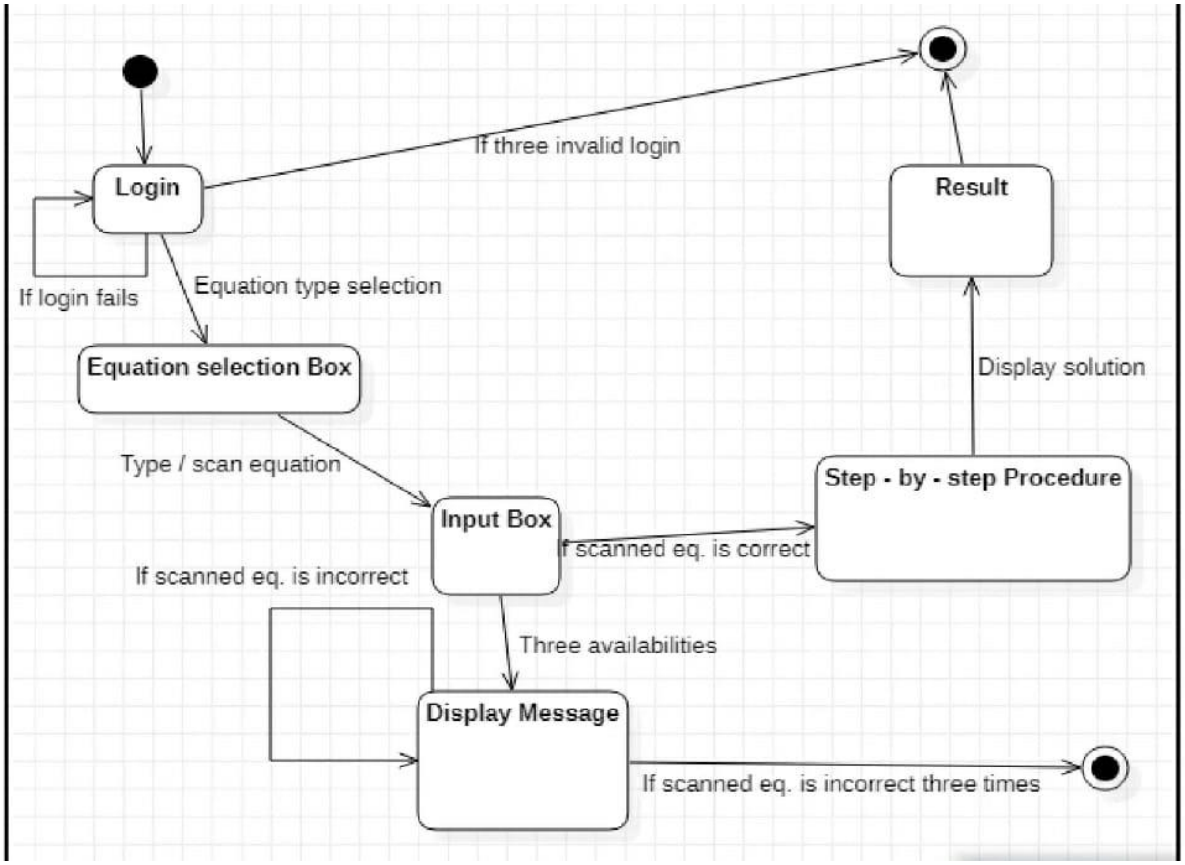
This diagram identify the structural elements required to carry out the functionality of an interaction. A model is the built using the relationships between those elements. The four major components of collaboration diagram are objects, actors, links and messages.



8)Stateflow diagram:

State-flow diagram describes all of the states that an object can have, the events under which an object can have, the states, the conditions that must be fulfilled before the transition will occur and the activities undertaken during the life of an object.

These diagrams shows all the possible states of the object and the transitions that cause a change in the state.



11 Reference :

1)We collect information about the mathematical equation solving software through the internet.

2) We gathered information from https://www.msbtemicroproject.tech.

12 Conclusion :

Hence, from this project I successfully learn to draw different types of diagrams like Data Flow Diagrams, Use case Diagrams, Activity Diagrams, Collaboration Diagrams , Sequence Diagram, State-Transition Diagram, etc and also learn to classify different requirements based on the software development along with this I learn to draw the Decision Table and Test Case related to the software