FormCalc

Interim Report

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1.0 Introduction

"FormCalc" is a software calculator which is implemented as a Computer Program, not as a physical hardware device. "FormCalc" is different from the standard calculators. It is different because, user doesn't have to enter keys or commands each and every step in order to get the end result. It's a symbolic calculator allows user to enter the formula in symbolic forms to generate/obtain the end result at once. "FormCalc" in other words, reflects a combination of a standard calculator app and a mathematical software package in your desktop.

Special features

- Differentiation calculator
- Integral calculator
- Graphs creator
- Save and reload formulas / equations
- Quick access history recorder

2.0 Project Description

2.1 Requirements

2.1.1 Programming Language (C++)

C++ is a middle-level programming language developed by Bjarne Stroustrup starting in 1979 at Bell Labs. C++ runs on a variety of platforms, such as Windows, Mac OS, and the various versions of UNIX.

C++ is a general-purpose programming language. It has imperative, object-oriented and generic programming features, while also providing the facilities for low-level memory manipulation.

2.1.2 IDE (QT Creator)

QT provides a large set of libraries as well as the GUI related things (ex XML parsing, threads, networking), all in a consistent style and all multi-platform. This means we rarely need to use other libraries, though we do use boost for some things.

3.0 Project Plan

3.1 Activity plan

3.1.1 Team Roles

First thing we did in the project was delegating roles between team members. So we created a spreadsheet in Google Drive to vote team members for their expertise. We voted team members for their areas of expertise and at the same time vote ourselves for our strong areas. Through that we selected the best for their strengths accordingly.

	Tharkana (T)						Nelanga (Ne)						Poorni (Po)						Kavindu (K)						Namal (Na)						Priyanga (Pr)					
	T	Ne	Po	K	Na	Pr	T	Ne	Po	K	Na	Pr	T	Ne	Po	K	Na	Pr	T	Ne	Po	K	Na	Pr	T	Ne	Po	K	Na	Pr	T	Ne	Po	K	Na	Pr
Team Leader	R	G	G		G																			G												
Report Writers								R					G	G	R	G	G			G	G	R				G			R							
UI Designers	R							R	G	G	G		G	G				G		G	R	G									G	G	G	G		R
Developers	R	G	G	G	G			R	G						R		G		G	G	G	G				G	G	R	G	G	G					R
QA	R	G	G					R	G					G	R	G				G	G				G	G	G	R	G		G			G		

Task	Assigned Persons	Follow up
Team Leader	Tharkana	
Report Writers	Poorni / Namal	Kavindu
UI Designers	Nelanga / Kavindu	Team
Developers	Tharkana / Priyanga / Kavindu / Nelanga	
QA	Poorni / Namal	Team

Dev Team	Tharkana, Priyanga, Kavindu, Nelanga
Designing Team	Nelanga, Kavindu
Documentation Team (Reporting, QA)	Poorni, Namal

3.1.2 Project Sprint

This is the Project Sprint we are following at the moment to keep trak of the project.

Main T#	Sub T#	Task	Assigned person	Start date	# RemD	Due date	Progress
1		Research & Development		5/31/2015	-19.0	6/7/2015	92.50%
	1.1	Learn C++	All	5/31/2015	-19.0	6/7/2015	90.00%
	1.2	Select Best UI Framework	Dev Team	6/5/2015	-19.0	6/7/2015	95.00%
2		Requirement Analysis		6/7/2015	-17.0	6/9/2015	93.33%
	2.1	WBS	Srimal	6/7/2015	-18.0	6/8/2015	100.0%
	2.2	Project Sprint	Srimal	6/7/2015	-17.0	6/9/2015	100.0%
	2.3	Dev. Plan	Dev Team	6/9/2015	-17.0	6/9/2015	80.00%
3		UI,UX & Prototyping		6/8/2015	-15.0	6/12/2015	95.00%
	3.1	Wireframes	Kavindu	6/8/2015	-17.0	6/9/2015	100.0%
	3.2	High Fidelity	Nelanga	6/9/2015	-16.0	6/10/2015	100.0%
	3.3	UX & UI Review1	All	6/11/2015	-15.0	6/12/2015	85.00%
4		Architecture		6/12/2015	-8.00	6/18/2015	97.50%
	4.1	Flow Charts	Tharkana	6/13/2015	-7.00	6/19/2015	100.0%
	4.2	High Level Architecture	Dev Team	6/12/2015	-11.0	6/15/2015	90.00%
	4.3	UI Designings	Nelanga	6/12/2015	-9.00	6/17/2015	100.0%
	4.4	QA Release v0.0.1	Namal	6/17/2015	-8.00	6/18/2015	100.0%
5		Development		6/19/2015	26.00	7/22/2015	33.89%
	5.1	Basic Math Functions	Nelanga	6/19/2015	-3.00	6/23/2015	80.00%
	5.2	History Implementation	Tharkana	6/19/2015	0.00	6/26/2015	70.00%

ID	Task	Assignee	Start	Dur	End	%
5.3	Formula Storage	Kawindu	6/19/2015	0.00	6/2/2015	75.00%
5.4	Formula Evaluation	Srimal	6/19/2015	0.00	6/2/2015	80.00%
5.5	Formula Integration	Tharkana	6/27/2015	5.00	7/1/2015	0.00%
5.6	Formula Graphing	Kawindu	6/27/2015	6.00	7/2/2015	0.00%
5.7	Multiple Formula Graphing	Srimal	6/27/2015	6.00	7/2/2015	0.00%
5.8	File Handling	Tharkana	7/2/2015	11.00	7/7/2015	0.00%
5.9	Bug Resolving	Dev Team	7/16/2015	27.00	7/23/2015	0.00%
6	QA		7/8/2015	27.00	7/23/2015	0.00%
6.1	Create Test Scenario	Namal	7/8/2015	13.00	7/9/2015	0.00%
6.2	Unit Testing	Poorni	7/19/2015	30.00	7/26/2015	0.00%
6.3	Component Testing	Namal	7/20/2015	31.00	7/27/2015	0.00%
6.4	Integration Testing	Namal	7/21/2015	32.00	7/28/2015	0.00%
6.5	User Testing	All	7/22/2015	33.00	7/29/2015	0.00%
7	Documentation		6/20/2015	0.00	6/2/2015	48.48%
7.1	Daily Scrum Notes	Poorni	6/3/2015	24.00	7/20/2015	51.06%
7.2	Weekly Report	Kavindu	6/7/2015	23.00	7/19/2015	42.86%
7.3	Interim Report	Poorni / Kavindu	6/23/2015	0.00	6/2/2015	100.00%
7.4	Final Report	Poorni / Kavindu	7/15/2015	25.00	7/21/2015	0.00%
8	Deployment	Dev Team	7/22/2015	28.00	7/24/2015	0.00%

Read more - https://goo.gl/qeUjOh

3.2 Meeting plan

3.2.1 Daily / Weekly Scrum note

To make things easier and efficient, we keep every meeting documented. Even it was not possible to meet every day we discuss about the project over Skype and Viber and we kept notes on each of those meeting.

3.2.2 Weekly reports

This is a weekly summary of meeting reports we held for last couple of weeks. We decided to stick with weekly project evaluation rather than daily evaluation, in that way we can discuss about what we have done in that week. Our meetings were held according to this plan.

- What I did this week?
  In this stage each team member discussed about what they did so far and how they achieve their assigned tasks. In the meantime Reporter took down notes of errors and difficulties each member faced and entered those data in Weekly meeting spreadsheet

- What I'll do Next week?
  In this case we discussed about what are changes and enhancements needed. And carry on assigned tasks. Whole team will discuss what needed to be done to run the project smoothly.

- Drawbacks
  In this stage, each member talked about what are the difficulties he/she faced and the whole team came up with solutions for those things.

Meeting Date	Meeting Time	Venue	Discussion
30.05.2015	1400 – 17300	NSBM Auditorium	This is the first meeting, so we discussed about following things. • Learn C++ • R&D (IDEs, Similar apps, UI samples) • Weekly meeting structure • Team roles

07.06.2015	1730 – 2000	NSBM Study Area	This is the weekly meeting for (31.05.2015 – 06.06.2015)
			• Discussed about every one's finding on the given tasks.
			• Chose a suitable IDE, UI layout
			• Assigned new tasks for the team
			  ○ Flowcharts, WBS, Wireframe designing
			  ○ Mock UI
			  ○ R&D further more

12.06.2015	1600 – 1800	McDonald's Nugegoda	This is the weekly meeting for (07.06.2015 – 11.06.2015) • Flowcharts, WBS, Wireframe designing, Mock UI reviewed by the team. • Discussed about any methods to implement this project.

|			• Assigned new tasks for the
			    ○ Modifications on Flowchart, WBS, Wireframe and Mock UI
			    ○ R&D further more
			    ○ Start working on Interim report

19.06.2015	1730 – 2000	McDonald's Nugegoda	This is the weekly meeting for (13.06.2015 – 19.06.2015) • Finalized Flowchart, WBS and Wireframes • Modified UI • Checked the Interim report up to date
26.06.2015	1000 – 1600	NSBM Study Area	Worked on the Interim report

4.0 Project Design

4.1 Work Breakdown Structure

Read more - https://goo.gl/l6xmJ6
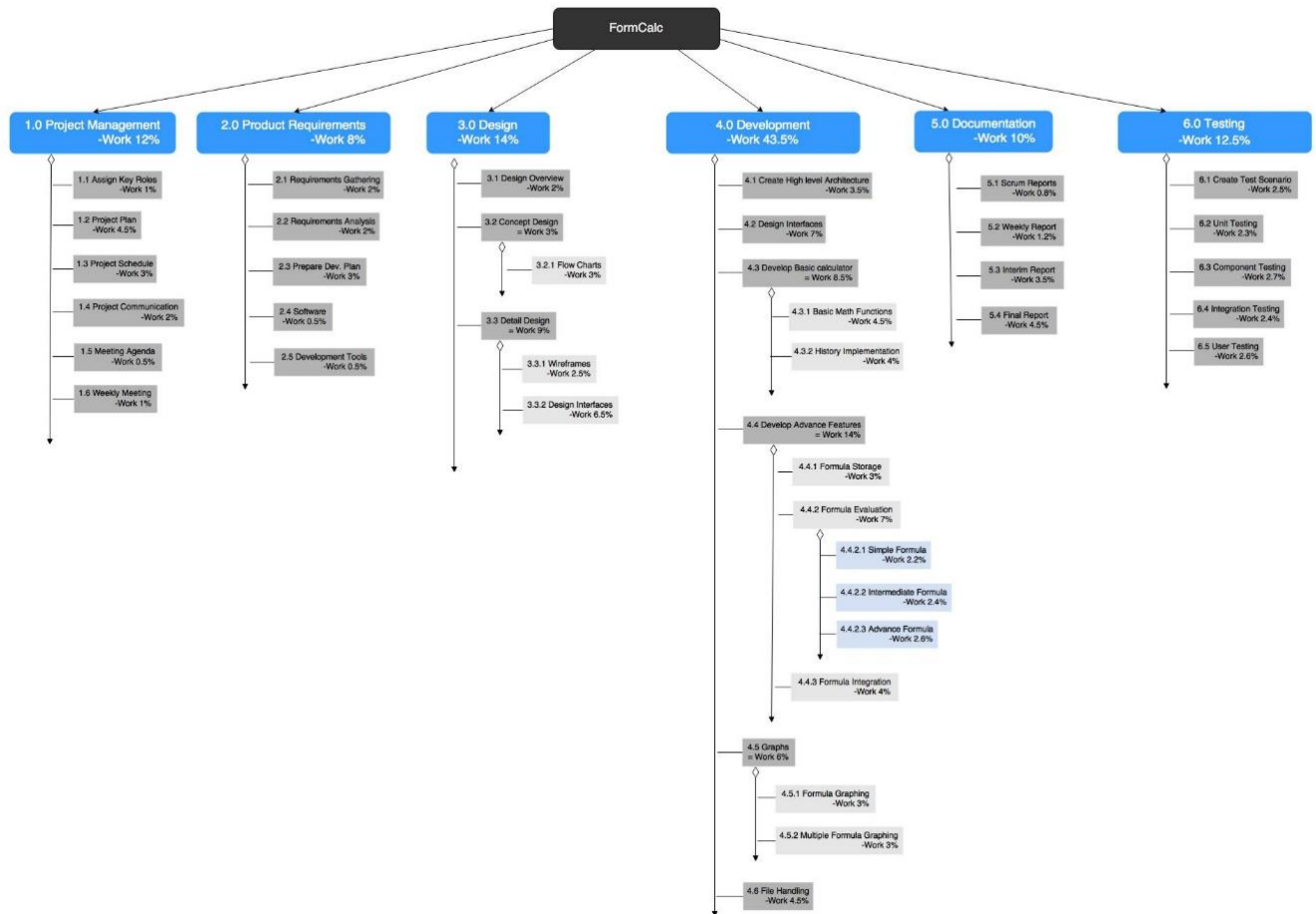
4.2 Flowchart Diagram

Read more - https://goo.gl/s7SNY6
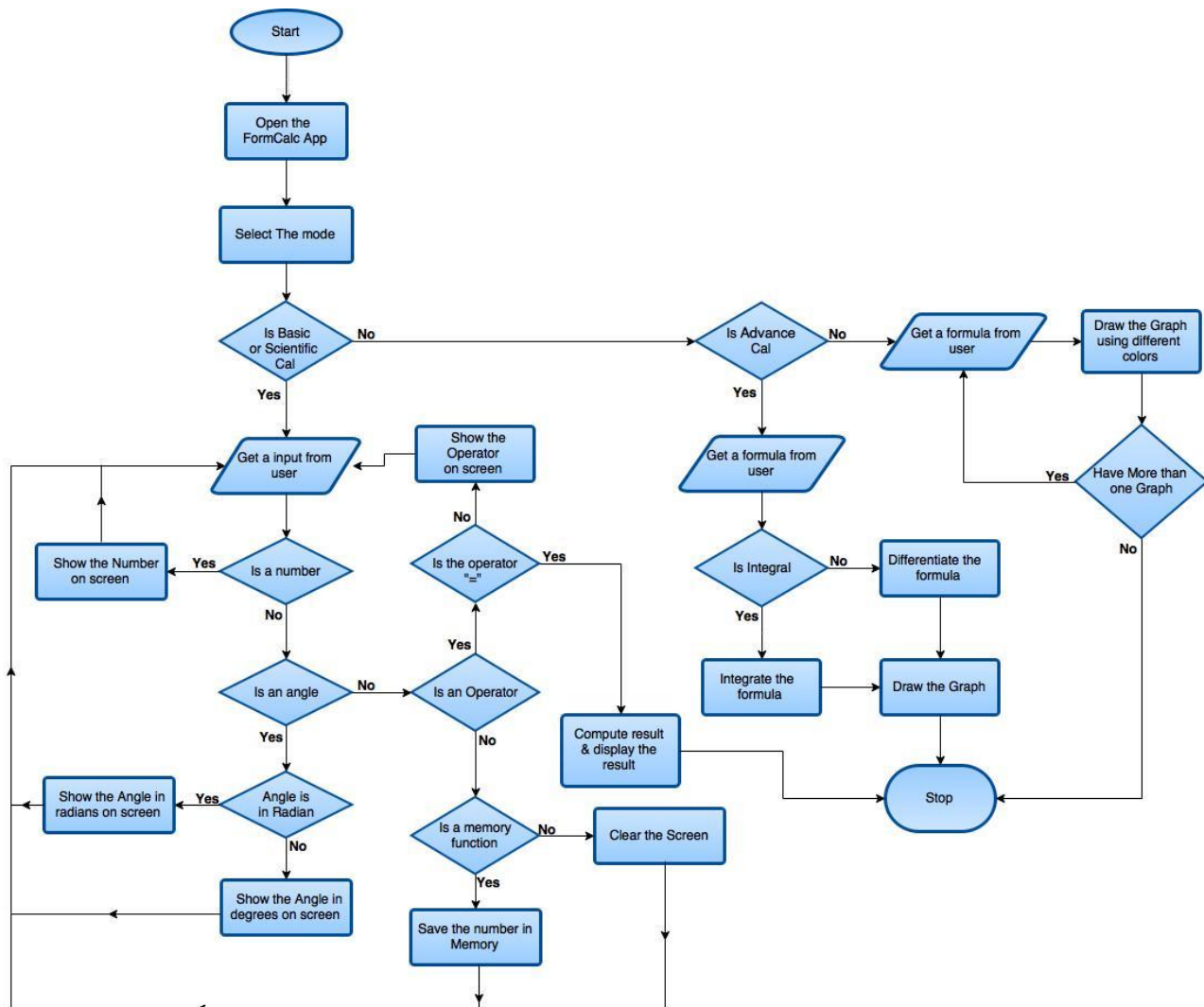
4.3 Wireframes

Read more - https://goo.gl/op10hY
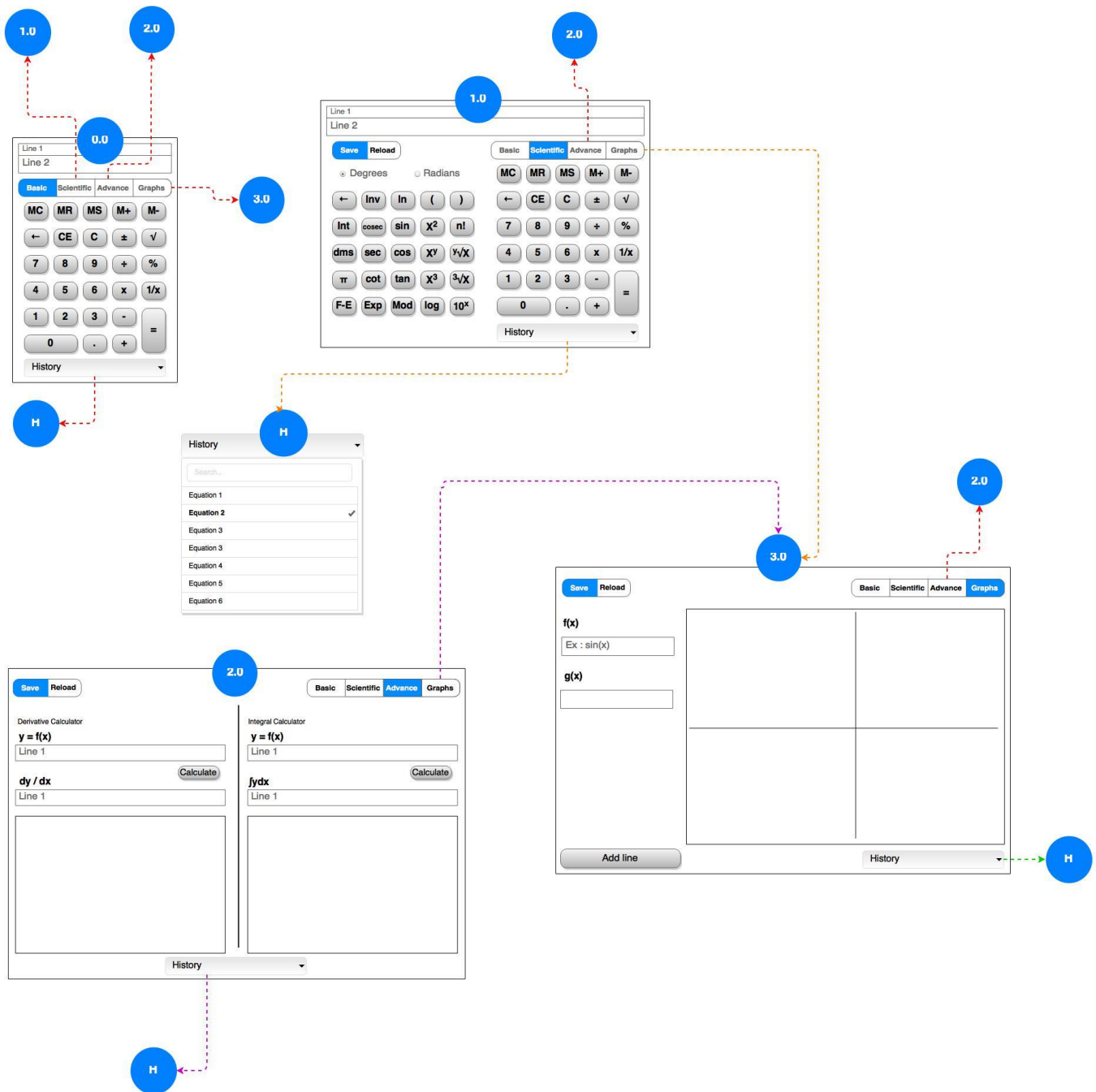
5.0 Software Implementation

To make things easier, we divided the complete project into smaller divisions, so each member can take over one part and work on that. As we suggested, following divisions are created. We call it 3D structure.

- Designing team (Wireframes, UI)
- Dev team (Flowcharts, Development)
- Documentation, Testing and QA team (Reports, QA)

So these are the tasks which these teams must achieve by end of the project.

- Research and Development
- Requirement Analysis
- UI,UX and Prototyping
- Architecture
- Development
- Quality Assurance
- Documentation
- Deployment

5.1 What have we done so far?

During the first week we learnt C++ and selected the best UI framework which suits our software. Second week we started to analyze our requirements and started working on wireframes. Planning the final User Interface and UX and UI Review 1 too were completed during the second week. During the second and third week we planned High Level Architecture and started developing the User Interface. First QA release (QA Release v0.0.1) took place during third week. At the end of the third week we started developing the application.

5.1.1 Sample UI
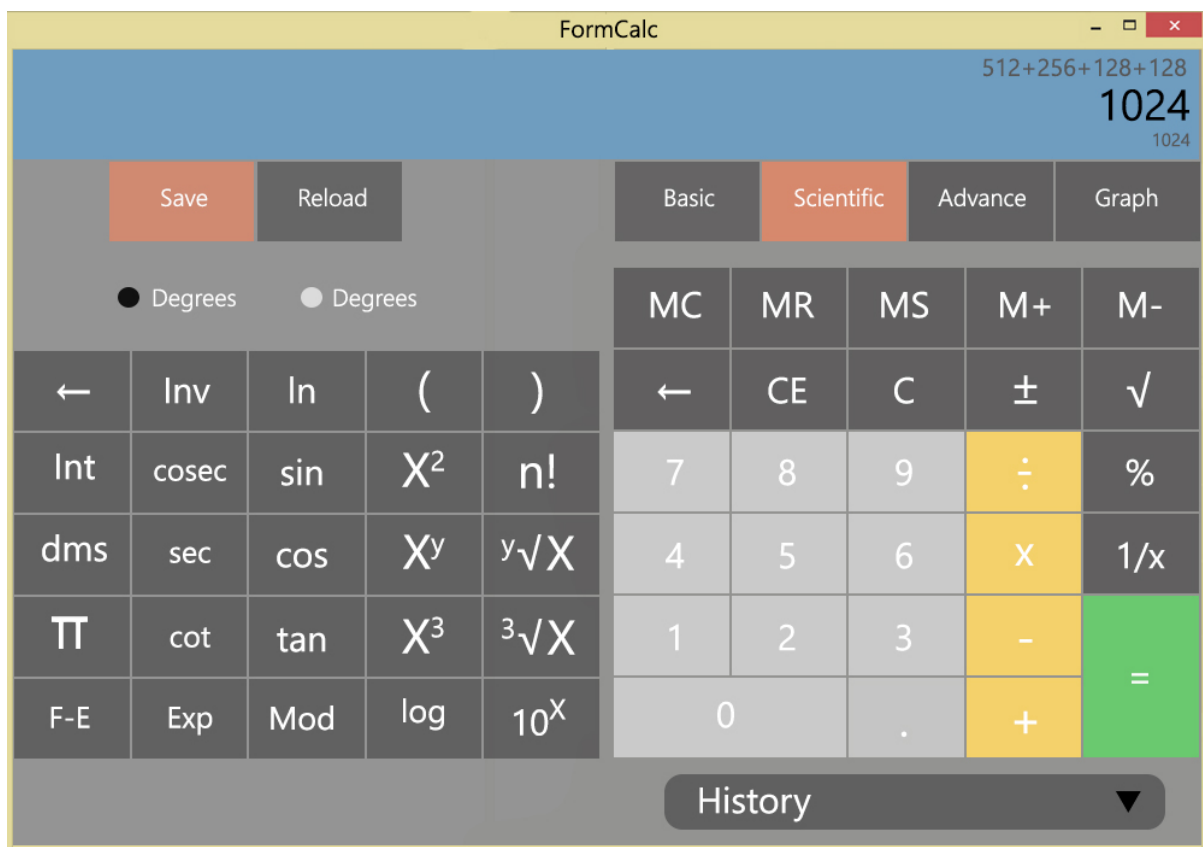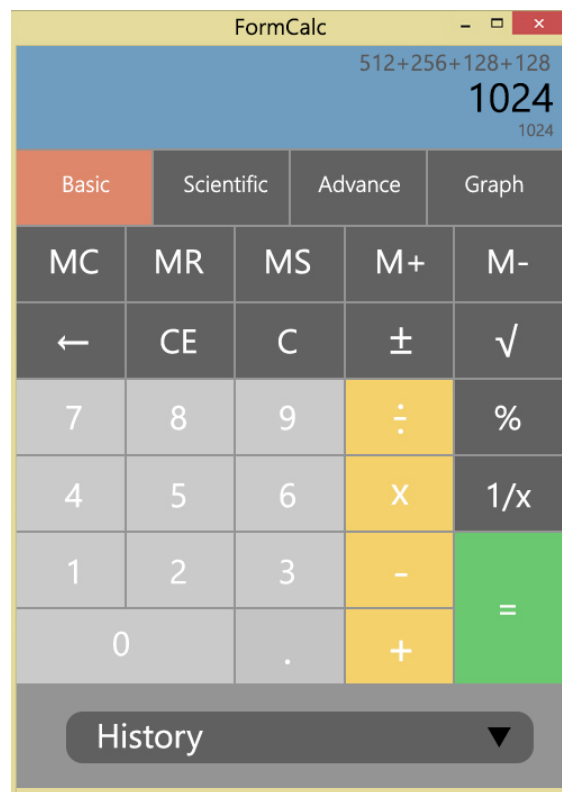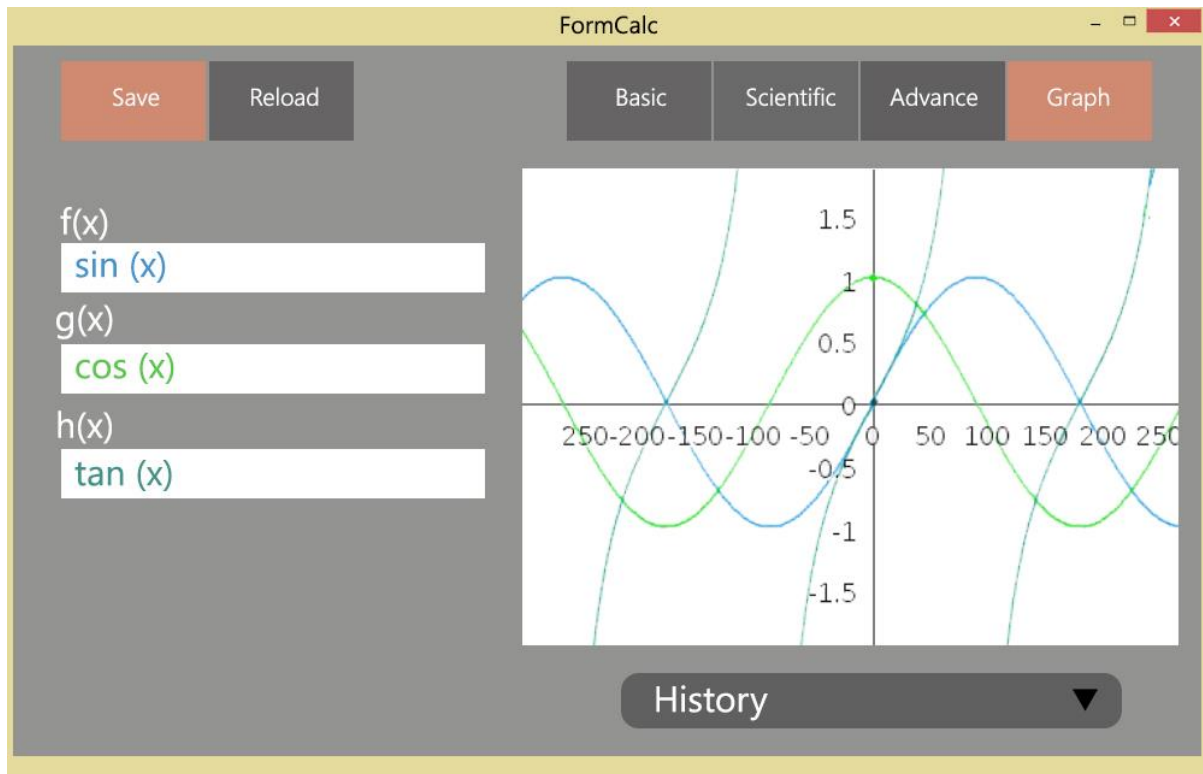
5.2 Future plans

Hence developing User Interface is not completed further work to be done. Developing the application is still at the initial stage, so further developing to be done.

We are planning to research on implementing integration and differentiation calculations from the calculator. Then hope to develop that as well. Further researching on how to design graphs for the given equation and develop it.

6.0 Conclusion

We started our project after spending sometime on planning it. Finally we decided FormCalc and implemented with a lot of effort and great team spirit.

Even though we started as early as possible, that's the peak we were working on this. That's because our exams. That's our hard work and dedication brought us this far even during exams and some of our team member's jobs.

As a good team we have done a good job so far and will be finishing our project before the deadline.