Subsurface
Customizable print formats
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Table of contents

I.   Introduction

Although Subsurface is a mature dive log application, it is missing good customized printing support. This projects aims to add customizable print support to Subsurface so the user can control which information is printed where and using which style, and control over major style elements like font sizes and positioning of the data.

I was a GSoC student for Subsurface last year, and I gained a lot of experience from Subsurface, I hope I will add better contributions to Subsurface this year and also get my hands in more areas in the codebase.
I selected this idea because it fits my skill set well, I love C++ and Qt, I know HTML and CSS and I am very interested to work on this Idea.

II.   Requirements

- Customized printing layouts (where to position my data?)
  - Select between pre existing layouts
  - Add special layouts.
- Customized printing styles (how to position my data?).
  - Select colors and fonts in the print dialog.
  - Select page margins.
  - Add special CSS formats in the layout templates.
- Expandability
  - Inherit from existing layouts to create new layouts.
- Choose the data to print (what to print?)
  - Print dive data
  - Print dive table
  - Print dive statistics
    - Print statistics charts/curves

Pre Existing layouts technical information

- Supported Paper size : A4 – A5
- Supported Quality : 300 dpi
- Supported Orientation : Portrait

III. Design

Design principles

- Easy for beginners and very customizable for advanced user.
- Minimum navigation between panels.
- Expandability

The project is divided into three main parts

1. Custom prints module

This is the main part of the project, this module will add the core logic of the printing service.

Classes:

CustomPrinter	This is the main class that holds the rendering logic, the Qwebview and the Qprinter objects, this class will also lay the dive profile above the rendered HTML page to prevent using svg files.

2. Grantlee backend

This part will be mainly dealing with Grantlee to export the HTML file based on the provided template.

Classes:

TemplateLayout	This class will hold the Templating engine logic.
TemplateEdit	This class will contain the template editing options as well as the logic to customize new templates.

3. Grantlee templates

This are the pre-existing templates that can be used directly.

- 1 dive per page
- 2 dive per page
- 4 dives per page
- flowlayout
- column flow layout
- statistics
- table
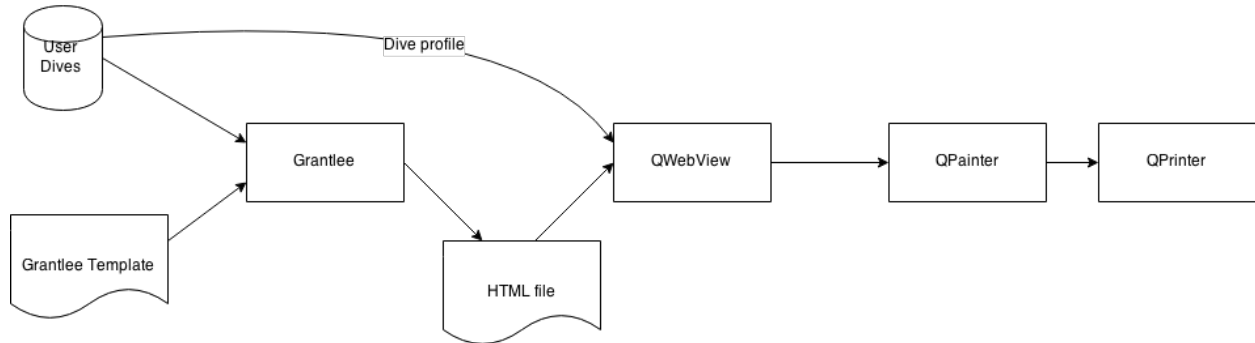
Figure(3.1) Printing block diagram

Figure(3.1) shows an overview of the project, Grantlee templating engine will be used to format Html files using Grantlee templates, The produced Html file will be rendered on QWebView object, Additionally the dive profiles will be rendered on top of the Html and printed using QPainter.

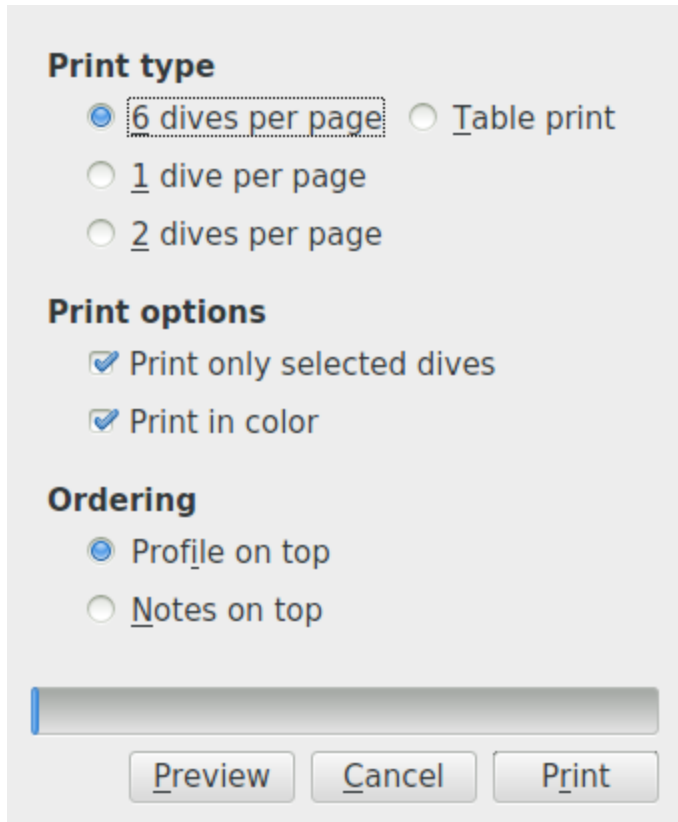This will require setting the QWebView content width by determining the page size and the DPI, while the page height will be depending of the content in the html file.

The QPainter viewport width and height will be set by both the page size and the selected DPI. Rendering the QWebView will take place by scrolling the QPainter viewport over the whole content as shown in Figure(3.2)
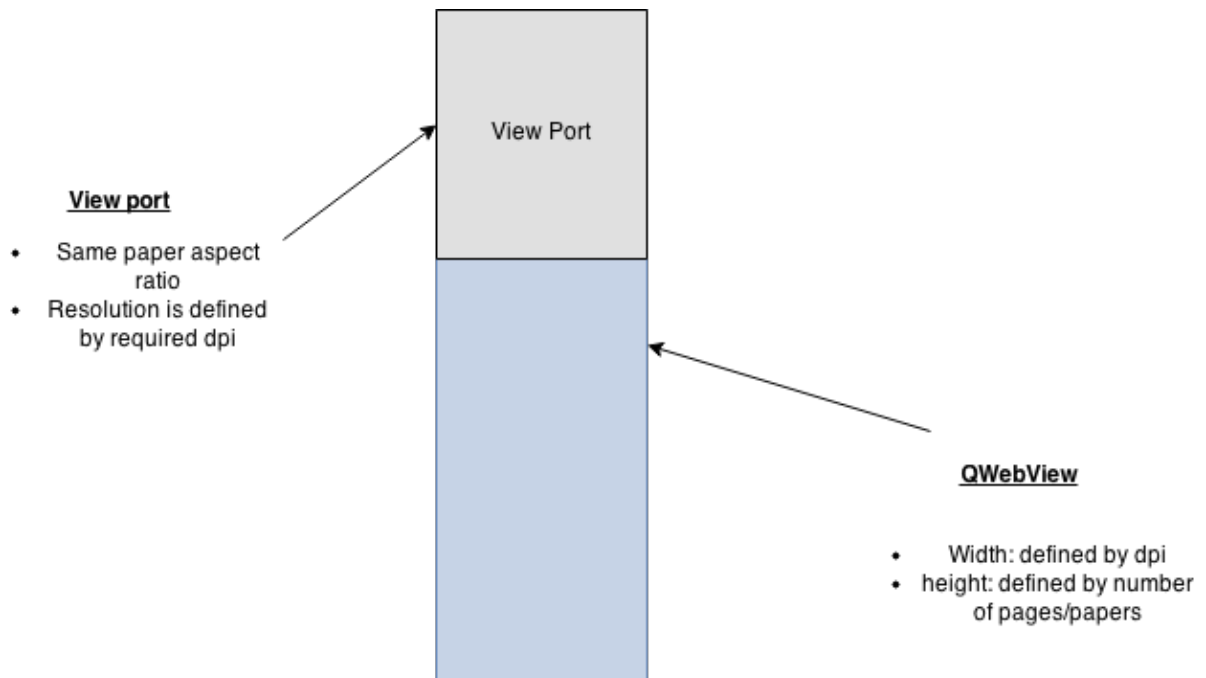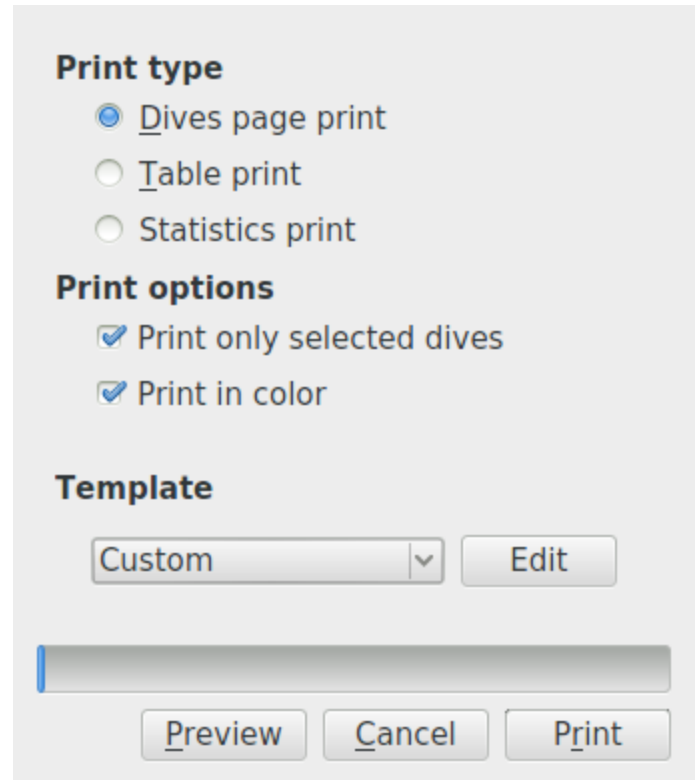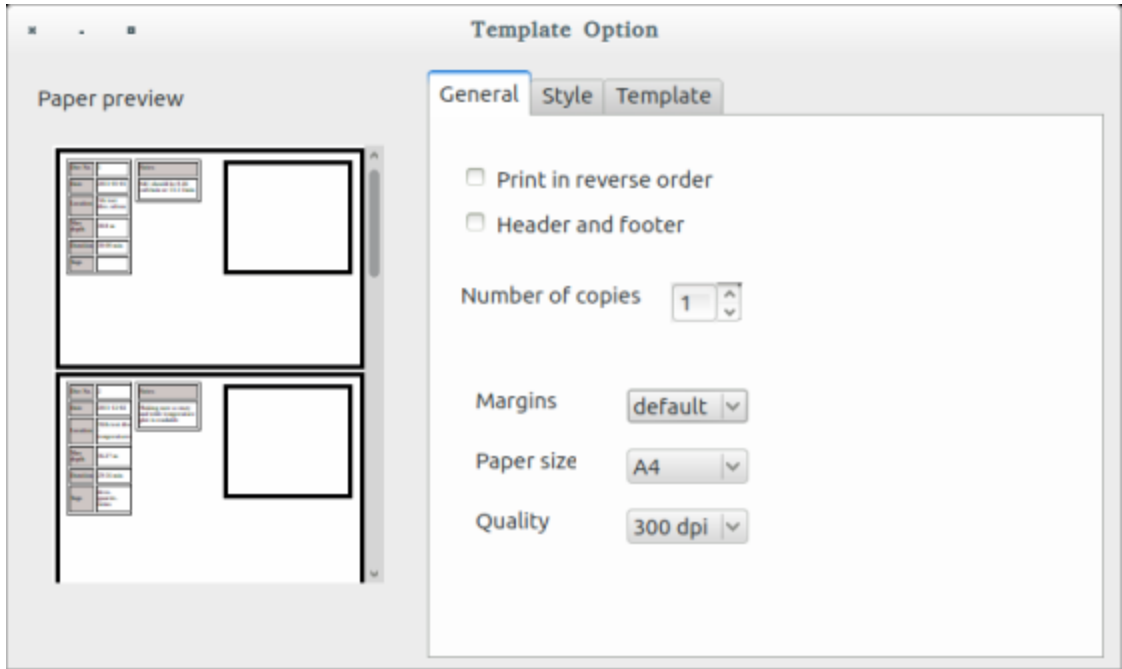

Figure(3.2)

The proposed new dialog figure(3.4) is very similar to the current dialog, the "Ordering section" will be replaced by "Template" section. All existing templates can be chosen from the combobox, also they can be edited by the Edit button.

Print type
- ⦿ 6 dives per page   ○ Table print
- ○ 1 dive per page
- ○ 2 dives per page

Print options
- ☑ Print only selected dives
- ☑ Print in color

Ordering
- ⦿ Profile on top
- ○ Notes on top

[Preview] [Cancel] [Print]

Figure(3.3) - Old print dialog

Print type
- ⦿ Dives page print
- ○ Table print
- ○ Statistics print

Print options
- ☑ Print only selected dives
- ☑ Print in color

Template

[Custom   ▾] [Edit]

[Preview] [Cancel] [Print]
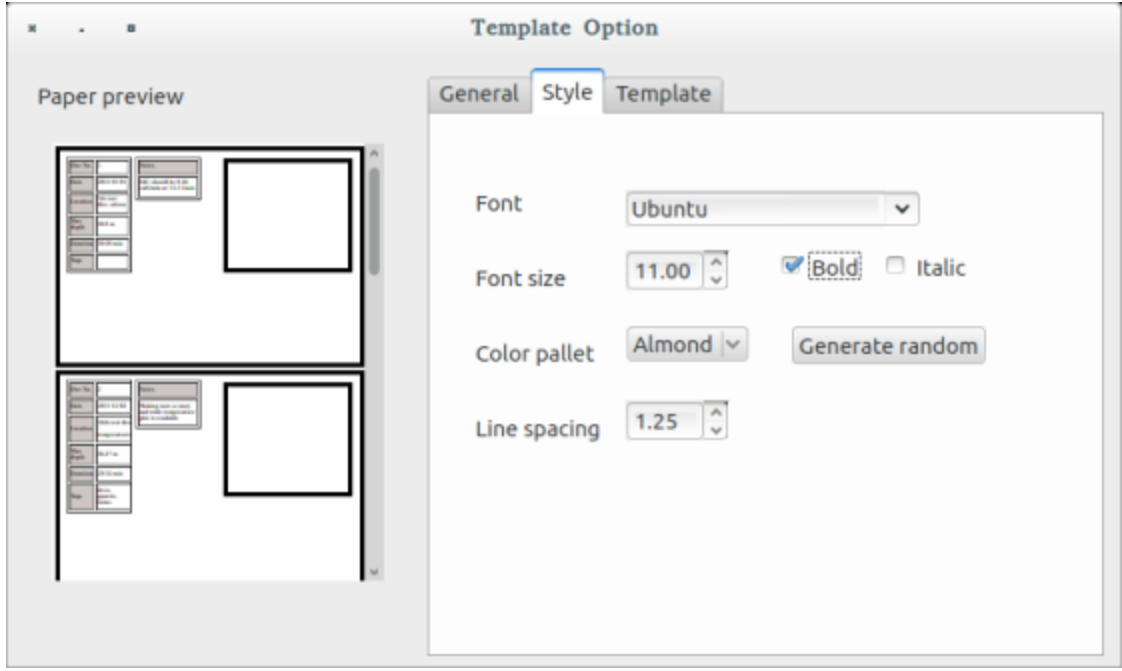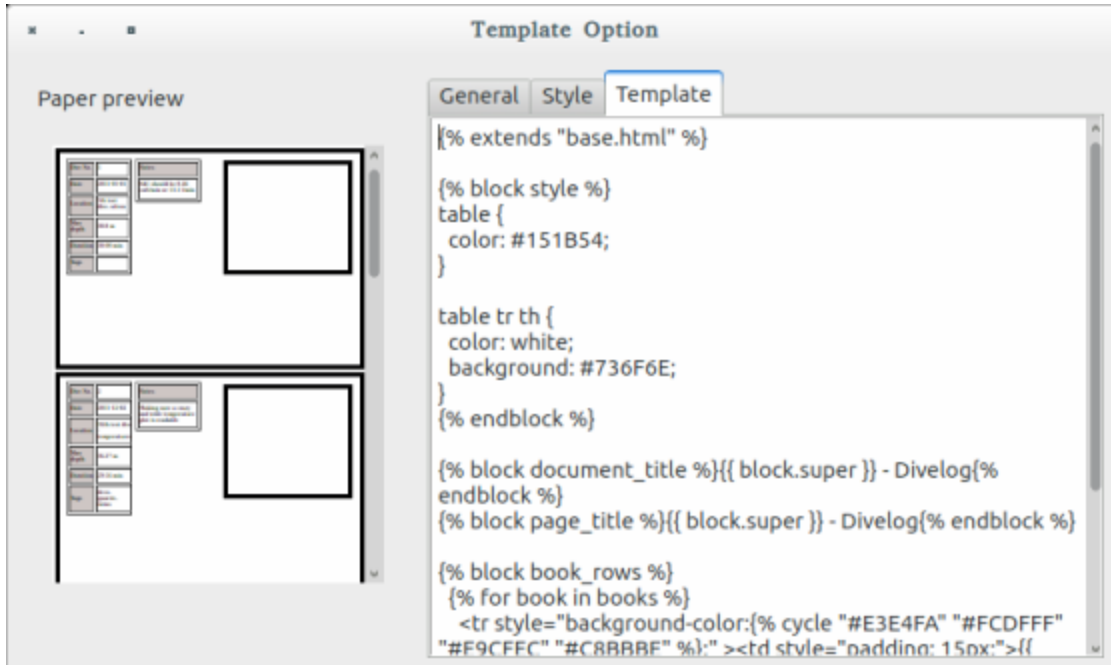
Figure(3.4) - Proposed print dialog

Figure(3.5) - Template options General tab

Figure(3.6) - Template options Style tab

Figure(3.7) - Template options Template tab

The template option window is the main window for template customization, There are three tabs for preferences

- General
  user can choose paper size, printing quality, margin size.
- Style
  user can control the font, font size, and colors.
  random color generator can be included.
- Template
  this will add the ability to change the source code of the template, this will provide very advanced customization and the ability to change where and how does the data appear.

1 dive per page

This is a basic 1 dive per page print template, With many dive details are shown

- big dive profile
- dive location, time, temp, etc.
- dive notes
- dive equipments

Figure(3.8)

2 dives per page

This is a 2 dives per page print out, with smaller dive profile in the view, but most important data are attached.

- dive profile
- dive location, time, temp, etc.
- dive notes (can be truncated)

Figure(3.9)

4 dives per page

This is a more compact print out with 4 dives per page, with less space for dive notes.

- dive profile
- dive location, time, temp, etc.
- very limited space for dive notes
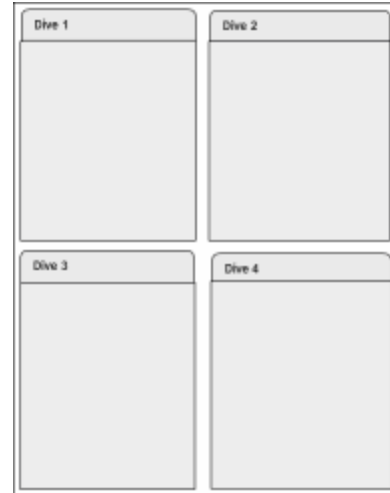
Figure(3.10)

Flow layout

Very adaptive layout, this should put as many dives in one page. This is specially designed to prevent long dive notes from truncation/overflowing. So the dive height will increase to hold all the dive data.

Figure(3.11)

Column flow layout

A variation of the Flow layout, it divides the
page into two columns and will place the
dives with dynamic height to prevent
truncation just as the Flow layout.

Figure(3.12)

IV. Plan

A. Milestones

Milestone 1		
	description	Develop the grantlee templates
	duration	2 weeks
	goal	by the end of this Milestone all the proposed templates must be developed

Milestone 2		
	description	Implement Grantlee backend
	duration	2 weeks
	goal	by the end of this Milestone HTML files must be generated correctly

Milestone 3		
	description	Implement custom printing module
	duration	3 weeks
	goal	The produced html files will be rendered correctly and printed

Milestone 4		
	description	Finish the GUI and integration to Subsurface
	duration	2 weeks
	goal	by the end of this milestone the editing windows must have been finished and all integration has been finished

B. Timeline

I am available mostly all the time of the program, I have final exams in the period from 25 may to 9 June, So my time dedicated to the program will be smaller at this period.
The following tables shows my working hours dedicated to the program.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

May 2015

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

June 2015

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

July 2015

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August 2015

Availability
red 4 hours/ day
green 8 - 9 hours/ day
yellow 6 - 7 hours/ day

Task	From	To	Duration
Integrating Grantlee and webkit	25 may	28 May	3 days
1 dive per page template	28 may	30 may	2 days
most important parts of grantlee backend	30 may	7 june	8 days
finish page templates (**1st Milestone**)	7 june	16 june	9 days
finish grantlee backend (**2nd Milestone**)	16 june	26 june	10 days
midterm evaluation	26 June	26 June	-
Implementing the custom printing module	26 June	6 July	10 days
Adding Dive profile to the print	6 July	10 July	4 days
Debugging and testing the custom printing module (**3rd Milestone**)	10 July	15 July	5 days
Implementing the edit template module	15 July	20 July	5 days
Finish integrating all the code and testing (**4th Milestone**)	20 July	29 July	9 days
Refactoring and polishing the code	29 July	7 August	8 days
documentation and online tutorial	7 August	12 August	6 days
Supporting facebook export with the printing backend (**Optional**)	7 August	17 August	10 days
pencils down	17 August	17 August	-

V.   Integration

I will Integrate Grantlee and the needed Qt modules in subsurface before I start working, Additional I ll work on a forked branch from subsurface master and rebase regularly with Master. my branch may be forked with subsurface after (3rd Milestone) since most of the code will be completed by that time.

VI.   Bug Fixes

Bug fixes will have the priority over implementing new features, I also added time specially dedicated to debugging before the end of both Milestone 3 and 4.

VII.   Documentation

A. User-Manual

I ll document the new printing features in the user manual.

B. Online tutorial

I will write an online tutorial (may be on subsurface-divelog.org) to describe how to create a new template and use it with subsurface printing module from scratch.

VIII. Subsurface Question

A. When did you first hear about Subsurface?
Last year before applying to GSoC 14'

B. Do you have any diving experience? (this is not essential, we have devs that are not divers)
No, I didn't. My intention was to go diving last year after I finished my gsoc project, didn't get the chance anyway hopefully I will dive this year.

C. What attracted you to Subsurface?
Subsurface is an open minded organization with a friendly team and they welcome contributions from everyone.

D. What other open-source tools do you use?
git, libreoffice, eclipse, openCV, gcc

E. Describe any participation by you in the Subsurface community (e.g. created tutorials, submitted bug reports, asked or answered questions on mailing lists or IRC).
I have submitted some bug reports on trac, I also hangout sometimes on IRC.

F. Describe any contributions you have made to Subsurface development (e.g. bug fixes, translations, packaging, testing).
I have finish the exporting html logbooks idea for gsoc 14' I have also submitted some patches with bug fixes in the QT ui and some other random work.

G. In exactly two sentences, why should we pick YOU?
Because I am very motivated to work on this project and I have the needed skill set. Also I want to have the opportunity to be a more involved Subsurface contributor and mentor GSoC projects in the future.

H. What is your name, email address, and irc nickname?
I am Gehad El Robey
email: gehadelrobey@gmail.com
irc: gehadelrobey

I. Describe any plans you have for the summer in addition to GSoC (classes, thesis, job, vacation, etc.).
I don't have any plans for this summer until now, I may travel for one week after the midterm evaluation.

J. What programming projects have you completed?
As I mentioned I have worked on GSoC last year under Subsurface organization, other than that I have worked in customizing Moodle as an adaptive elearning system (Summer internship - Mentor graphics egypt).
I have also completed many programming projects at college using Java, c++ tiny c compiler, equation solver, some java games and some network applications.

K. What are your favorite programming tools (editor, etc.)?
editor: gedit
compiler: gcc
version control: git
build: gnu make

L. List other GSoC projects you are applying to.
I am not applying to any other GSoC projects this year.