Table 1: Revision History

Date	**Developer(s)**	**Change**
Sept 25, 2018	Vaibhav, Usman, Andy	Worked on part 1 to 4
Sept 27, 2018	Vaibhav, Usman, Andy	Worked on part 4 to 8
Sept 27, 2018	Vaibhav	Added the information from the meeting documents to the LaTeX file
Sept 28, 2018	Andy	Proof of concept, Git workflow, Final editing and formatting
Sept 28, 2018	Usman	Updated proof of concept
Oct 12, 2018	Andy	Made changes according to feedback on development plan and added section on POC demo
Dec 2, 2018	Vaibhav Chadha	Revision one changes to improve the documents quality.
Dec 2, 2018	Usman Irfan	Revision one changes to improve the documents quality.
Dec 3, 2018	Andy	Project Review section completed

SE 3XA3: Development Plan
Snake 2.o

Team # 30, VUA30
Vaibhav Chadha , chadhav
Usman Irfan , irfanm7
Andy Hameed , hameea1

1 Team Meeting Plan

Meetings will be held **twice a week** at the following times:

- Mondays 5:30 - 6:30 pm at KTH Computer Labs
- Wednesdays 12:30 to 2:00pm at Health science library

1.1 Roles and Agenda

Chair: Andy Hameed

- Responsible for creating the agenda and selecting topics that pertain to all team members
- Agenda items will be listed as questions

Notettaker: Usman Irfan

- Responsible for taking meeting minutes
- Meeting decisions will be summarized in a statement at the end of the meeting

Timekeeper: Vaibhav Chadha

- Keeps track of time in case we are spending too much time on one topic

2 Team Communication Plan

Main source of communication is Facebook Messenger, it will be used for general inquiries, updates, reminders of team meetings, any links to useful resources and so on. Phone and texting will be used as a backup in case of urgent matters,

for example not being able to get in contact with a team member through Messenger. Aside from these, the team will be using Workflowy to assign small tasks that are promptly due or ones that may not necessarily fit on the Gantt chart because they are minor - this tool will be used to delegate a small to-do list for each team member.

3 Team Member Roles

Vaibhav Chadha:

- Latex Documentation
- Analyst - makes sure the requirements of the clients are met through the software
- Gantt chart management

Usman Irfan:

- Scribe
- Technology Research
- operation manager -ensures project development is running smoothly and software is being developed according to milestones

Andy Hameed:

- Final editing
- latex documentation
- team leader

All:

- GIT project management

4 Git Workflow Plan

We will be using the Git Feature Branch Workflow to manage the software development. Using branches, each team member is capable of working on different modules or sections of the software at the same time in localized branches, before pushing their changes to the master branch.

The following procedures will be followed:

- Vaibhav will be tagging any major milestones for final submission. This makes the submission process consistent. Otherwise, Andy or Usman will agree on one person to tag and submit for final submission.
- Any major changes and submissions, especially those involving a milestone, can be placed in a branch to avoid merging conflicts and overwriting existing work. They can be merged later on upon team agreement.

5 Proof of Concept Demonstration Plan

The original project is built using JavaScript, HTML and CSS in contrast to our development plan using Python and the Pygame library. Since we are using an OOP language, we will be able to create classes for different components of the snake game such as the snake's body drawn in blocks, and snake's food. The hardest part of the implementation will be the movement of the snake according to the user's keyboard inputs, and second to that would be the process of expanding the snake once a food item is captured. Besides that, the interface may be difficult to implement in Python using the Pygame library to make it engaging.
Once our game application has been developed the next part would be to test the project and for that we will be using Pytest, since our backend language is Python this will help us test all possible functions and functional requirements. The functions that will be difficult to test would be to see if the snake eats the food, does the food appear at random locations after eaten by the snake and if the snake tries to leave the borders, will the game end. Portability will have to be taken into consideration since the application is being built for different Operating System. However, it can be compiled and run on any system as long as the necessary files and libraries are download.

5.1 POC Demo

The team will be demonstrating the movement of a snake around the screen using unit blocks for the body of the snake. Lengthening the snake body, scoring and eating the bate will not be demonstrated in the demo. This POC should demonstrate that with the movement of the snake, which is the main component of the game, the team will be able to develop classes to represent other components of the game such as the score, food bate, and lengthening of the snake body.

6 Technology

Coding Language: Python, Pygame for GUI
IDE: IDLE scripting
Testing: PyUnit testing

Documentation: Doxygen

7 Coding Style

We will be using the Google Python Style Guide for our coding style. It encompasses all the necessary naming conventions and standards required for the project development.

8 Project Schedule

Please see the following pages for the project schedule in the form of a Gantt Chart.

3XA3: Team Project

5-Dec-2018

http://

Project manager	
Project dates	25-Sep-2018 - 4-Dec-2018
Completion	96%
Tasks	74
Resources	5

Developing the clasical Snake game using python and front-end development languages.

Tasks

Name	Begin date	End date
Development Plan	25/09/18	28/09/18
Team Meeting Plan	25/09/18	25/09/18
Team Communication Plan	25/09/18	25/09/18
Copy_Team Communication Plan	25/09/18	25/09/18
Team Member Roles	26/09/18	26/09/18
Git workflow plan	26/09/18	26/09/18
Proof of Concept	27/09/18	27/09/18
Technology	27/09/18	27/09/18
Coding Style	28/09/18	28/09/18
Project Schedule	28/09/18	28/09/18
Project review	28/09/18	28/09/18
Requirements Document Revision	01/10/18	05/10/18
Project Drivers	01/10/18	02/10/18
Functional Requirements	02/10/18	03/10/18
Non-Functional Requirements	02/10/18	03/10/18
Project Issues	04/10/18	04/10/18
Push & Tag Document	05/10/18	05/10/18
SpellCheck	04/10/18	04/10/18
Proof of Concept Demonstration	08/10/18	11/10/18
Snake Body & Movement	08/10/18	09/10/18
Home Page GUI	09/10/18	10/10/18
Border Boundaries	11/10/18	11/10/18
Test Plan Revision	12/10/18	26/10/18
General Information	12/10/18	12/10/18
Plan	15/10/18	15/10/18
System Test Description	17/10/18	18/10/18

Tasks

Name	Begin date	End date
Tests for Proof of Concept	22/10/18	24/10/18
Snake Module	22/10/18	22/10/18
- Test for appropriate reaction to snake movements based on keyboard presses. *- initialization of snake object* *- Requirements involving the Snake module (see Test Plan requirements)*		
Interface Module	22/10/18	22/10/18
- Test functionality within the user interface including mouse clicks towards edge of buttons and clicking window windows (exit, maximize, minimize)		
Food Module	22/10/18	22/10/18
Non-functional requirements survey	23/10/18	24/10/18
- create a survey for peers to fill out upon playing a demo of the game. The survey can be done in any means but it is recommended to use google forms for ease of use.		
- Add questions as you find apprioriate and show to family and peers		
Comparison to Existing Implementation	25/10/18	26/10/18
Unit Test Plan	25/10/18	26/10/18
Design & Document Revision	29/10/18	06/11/18
Anticipated and Unlikely Changes	29/10/18	29/10/18
Introduction	29/10/18	29/10/18
Module Hierarchy	30/10/18	30/10/18
Conncection between Requirements and Design	30/10/18	30/10/18
Module Decomposition	31/10/18	01/11/18
Traceability Matrix	01/11/18	01/11/18
Use Heirarchy between modules	02/11/18	02/11/18
MIS	05/11/18	06/11/18
Interface | HIghscore | Theme - Doxygen	05/11/18	06/11/18
Food | init - Doxygen	05/11/18	06/11/18
Snake | Gameplay - doxygen	05/11/18	06/11/18
Module Implementation	07/11/18	14/11/18

Tasks

Name	Begin date	End date
highscore	07/11/18	07/11/18
Gameplay	07/11/18	08/11/18
init	09/11/18	09/11/18
Interface	07/11/18	08/11/18
Food	09/11/18	09/11/18
Themes	13/11/18	14/11/18
Snake	12/11/18	12/11/18
Food	12/11/18	12/11/18
Testing	15/11/18	19/11/18
System/Integration testing	15/11/18	15/11/18
Will be done throughout the development process to check if everything works together correctly. Closer to the final date, peers will be asked to try the game as part of system testing.		
Gameplay - unit testing	16/11/18	16/11/18
Interface - manual/integrated testing	19/11/18	19/11/18
Themes - integrated testing	16/11/18	16/11/18
Revision 0 Demonstration	20/11/18	20/11/18
Meeting to run through Rev 0 Demo	20/11/18	20/11/18
Final Demonstration	21/11/18	27/11/18
Presentation Slides - Draft 1	22/11/18	22/11/18
Presentation practice	23/11/18	23/11/18
Edit slides	23/11/18	26/11/18
Improve Game Interface	21/11/18	21/11/18
Some elements to imporve: *- color contrast* *- color schemes and layout* *- font*		
Peer Evaluation - Final Demo	27/11/18	27/11/18

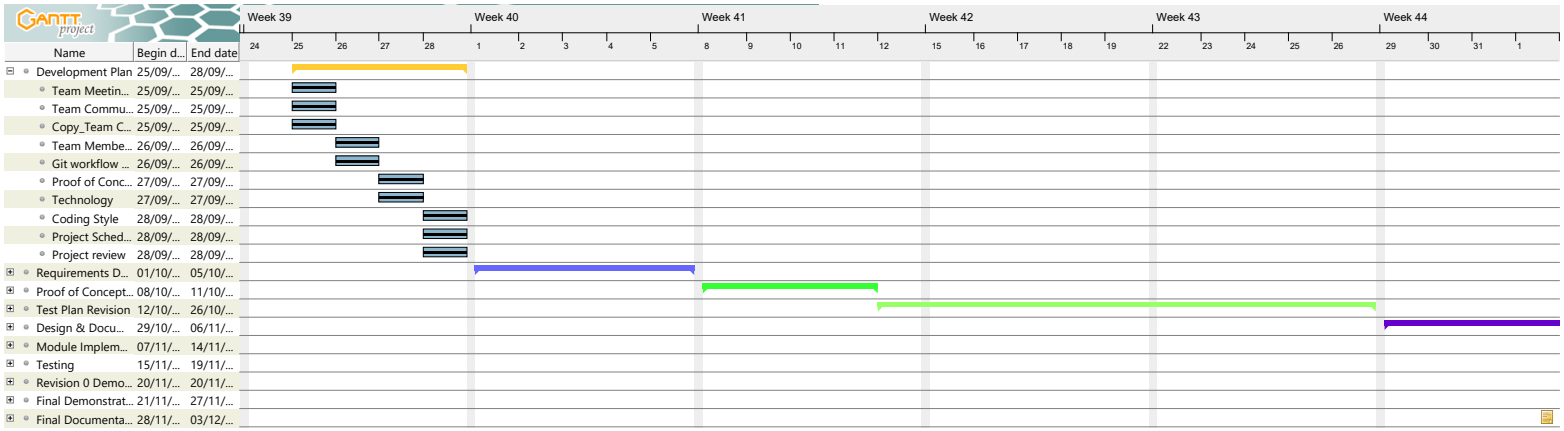
Tasks

Name	Begin date	End date
Final Documentation	28/11/18	03/12/18
Problem Statement *Development Plan* *Requirements Document* *Design Document* *Test Plan* *Test Report* *Users Guide (optional)* *Source Code*		
Feedback Revision	28/11/18	28/11/18
Each member will apply the feedback given in each document for their specific part. In order to ensure completeness, the team will meet and go through each point of feedback to make sure it has been fixed by one of the three members.		
Clean Code	29/11/18	29/11/18
- any repeated constant declarations, unnecessary comments and sections that have been commented out for testing *- folder organization of images and other files*		
Test Report	30/11/18	03/12/18
Section 4,5 and 8	30/11/18	03/12/18
Section 2,3 and 9	30/11/18	03/12/18
Section 1,6 and 7	30/11/18	03/12/18

Resources

Name	Default role
Andy	Main Programmer | Requirements Documentation
Usman	Main Programmer | Requirements Documentation
Vaibhav	Git master | Testing Requirements
Varun Hooda	TA
Dr. Bokhari	Course Professor

Gantt Chart


Week 39
Week 40
Week 41
Week 42
Week 43
Week 44
24 25 26 27 28 1 2 3 4 5 8 9 10 11 12 15 16 17 18 19 22 23 24 25 26 29 30 31 1
Name
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Development Plan 25/09/... 28/09/...
Team Meetin... 25/09/... 25/09/...
Team Commu... 25/09/... 25/09/...
Copy_Team C... 25/09/... 25/09/...
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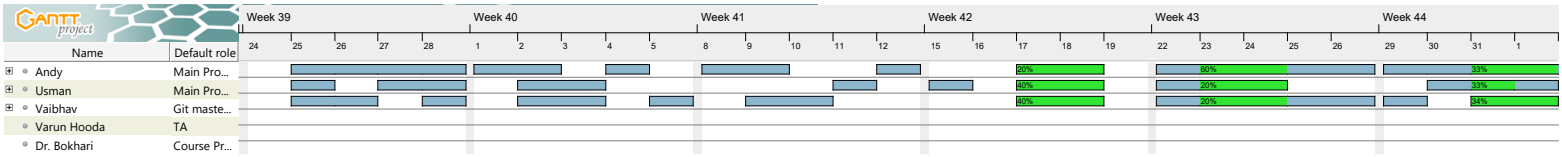
Module Implem... 07/11/... 14/11/...
Testing 15/11/... 19/11/...
Revision 0 Demo... 20/11/... 20/11/...
Final Demonstrat... 21/11/... 27/11/...
Final Documenta... 28/11/... 03/12/...

Resources Chart



9 Project Review

The Snake 2.o project ultimately produced three quantifiable assets to the original Snake Game project. The change in game environment from an online playable version to a desktop version allowed for portability and non restrictive playing conditions after the initial download. Rearranging the game buttons and features in a new layout along with a complementary color scheme improved the overall aesthetics of the game, creating a positive and pleasant gameplay experience. In addition, the themes and difficulty modes added to the game added a twist to the orignal game, giving the reimplementation a unique characteristics that is typically missing from remakes of the game.

The project objectives that were set out in the beginning have been acheived. Future plans for the project include the following changes and additions:

- Additional theme options besides the existing dark, regular and random themes
- Smoother snake movements and snake visual representation
- harder modes and additional levels with unique elements drawn from peer feedback
- game window resizing ability

Note that this is a brief list of some of the ideas and plans for future implementation objectives and tasks. However, it is not an exhaustive list and will continue to change as the project progresses.