NAH Group 2 Contributions Report

NAH group 2 consists of the following members:

GAVIN BAILEY	711036
GRANT BELSEY	
TYRONE LEE BRAMWELL	710981
CHAK YAN LAM	667271
THOMAS LETHEBY	659204
MATHEW JAMES LLOYD	711293
JAKE DARYL PLUMLEY	707723
CHUN KIT SO	742666

Like all previous group assignments we have had no contact from Grant Belsey. He had no contribution to any elements of this assignment nor did he attend any of the meetings that we arranged. The meeting dates, times and locations were all put up on the Facebook group, which we created for the group tasks, of which Grant Belsey is a member, so he would have received notifications of such arrangements.
As a team we believe that each member has contributed equally to this project. Upon receiving the code from the other group we quickly realised the real world application of the Assignment in that you will occasionally have to inherit code that you don't think is up to scratch. The code that was received we felt was so strange that it took us a few weeks for real progress to be made while we assess the code and aim to figure out how to implement what we needed. The reason for the difficult start was due to the way in which the partial implementation had been completed with object references being passed around the whole program with completely unnecessary code being in a lot of different locations.
Once we had figured out how to implement the full implementation there was soon quick progress. We adopted the development technique of pair programming on many occasions which helped to get everyone the understanding of the code and caught many errors that were happening, particularly useful when implementing the AI.
Near the end there were a lot of occasions where bugs were being found on nearly an hourly basis which made the progress of the project fall to a crawl as the fixes required many hours of analysis and work, the main culprit being the use of Threads which made more problems than what they were probably worth.

Features

The application that the team has built upon NAH1 partial implementation contains the following features: Features which where in the partial implementation are mention and have (NAH1 partial implementation) at the end.

- The ability to select between the two games, Othello or Connect Four. (NAH1 partial implementation)
- The ability to select a colour which decides which player goes first
- The ability to have custom names for each player
- The ability to create two human players. (NAH1 partial implementation)
- The ability to create two AI players both hard and easy for both games.
- The ability to have Player vs. AI or AI vs. Player, AI vs. AI
- The users are able to play a game of connect four to completion, with a winner declared at the end. (NAH1 partial implementation)
- The users are able play a game of Othello to completion, with a winner being declared at

the end. (NAH1 partial implementation)
- The users are able to start a new game at any point during a game.
- Information is provided to the player indicating:
    - What colour piece they are.
    - Which players turn it currently is
    - Score (Othello only)
- Users are able to select a new game when a game has completed.
- Users are able to pass their move to the next player when no moves are available to them (Othello only)
- User feedback for Othello showing valid moves and marked with 'X'
    - User feedback for an incorrect Othello move of the selected box being marked with a red 'X'
- Users have the ability to Save a game for Othello and Connect Four
- Users have the ability to Load a game for Othello and Connect Four
- Animation for both Othello and Connect Four
- Users have the ability to restart a game.
- Timer on Othello and Connect Four using the specified format HH:MM:SS
- Users have the ability to change the design of both boards
- Users have the ability to change the speed of the gameplay

Where to download our project from

Cloning our git repository onto your machine can download our project. The URL for our repository is: https://github.com/NAH2/cs235groupNAH2a5.git

References

The group used many sources of information to help with this project; this was mainly used for the testing and GUI elements of the application. The main source of information was the Java documents website, many pages were used for so we could check if we were using an object correctly, or if there was another that would be more suitable.
http://docs.oracle.com/javase/tutorial/index.html
http://docs.oracle.com/javase/tutorial/uiswing/layout/visual.html
http://docs.oracle.com/javase/tutorial/uiswing/layout/layoutlist.html
http://docs.oracle.com/javase/tutorial/uiswing/layout/gridbag.html
http://docs.oracle.com/javase/7/docs/api/java/awt/GridBagLayout.html
http://www.macs.hw.ac.uk/guidebook/?name=Layouts&page=7

This url was used to ensure we had the correct approach to JUnit testing

http://ptgmedia.pearsoncmg.com/images/013143697X/downloads/013143697X_book.pdf

Reference books used:

Used for information on packages: Flanagan, D. (2002). Java in a nutshell: A desktop quick reference (4th ed.). Beijing ; Sebastopol, CA: O'Reilly. p81 - 82.

For information on events: Boone, B., & Mark, D. (1996). Learn Java on the Macintosh. Reading, Mass: Addison-Wesley Developers Press. p235-238

Compiling our code

To compile the application run javac on GameSelector.java with the following files in the same folder as GameSelector.java

Timer
AIEasy
ConnectFourLoader
ConnectFourSaver
FileManager
Game
GameBoardGraphics
GameWindow
Loader
OthelloAI
OthelloLoader
OthelloSaver
PlayerSettings
Saver
GameBoardControl
Grid
ConnectFour
ConnectFourAI
Drawing
GameSelector
Controls
Coordinate
EndDisplay
Human
Othello
Player

Individual Team Member Reports

Tyrone Bramwell – Testing Manager

In the assignment I worked on the AIEasy.java and FileManager.java files. I also did the testing on these files. I also created the demonstration video using U2Any Screen Recorder Free software from the apple app store this was because the software for mac recommend on Robert S. Laramee website left a watermark in the center of the video. I was also test manager for the assignment. The test plans where produced before the class where made so we know what data should be input into them and the output. The test plan where then modified to meet the class as the way we thought class where going to work changed. All classes have unit tests defined for them. The team's integration strategy is to print out the start and ends of methods. As each class runs we can then see through print statements when a method calls another method from another class. We decided not to use JUnit for this assessment.

Thomas Letheby – Doxygen Manager

In the assignment I helped the team creating some of the minutes for the meetings we held, I created the Timer.java class, modified EndDisplay.java and Drawing.java and collaborated with

Gavin when creating it. I looked through most classes to ensure the classes were correct to Bobs concise coding conventions and looked through all completed classes ensuring there were no errors in the code. I set up testing conditions in my classes and also in a few others and made sure I commented them correctly for use, ready for Doxygen. I was also the Doxygen manager so I helped to implement the commenting in most classes, and help others who didn't know quite how to comment the code correctly, I then generated the Doxygen documents ready for our customer. I fixed a few small features that were missing in the original implementation of the games by adding a timer and deleting the class Dialog which was unnecessary.

Chun Kit So – Implementation Manager

In Assignment 5, I have implemented GUI classes, load game function and merge all AI classes into the system, make sure all AI player classes are working smoothly . Due to the Othello is incomplete in A4 (players can't pass their turn), I have to do some extra work on it. Also I have tested Othello and Connect Four, make sure every method is working correctly. As an Implementation Manager, I ensured that everyone is clear on A5 requirement before start the implementation and every class is following the coding conventions. Moreover, I commented the Othello class and ConnnectFour class for Doxygen and make sure it generated a document.

Chak Yak Lam – Implementation Manager

In this assignment, I have worked on OthelloLoader, OthelloAI, GameboardGraphics and AIEasy. I also implemented some new ideas to the group work that we received. I mainly concentrate on the graphical design of the game. I have implemented the animation, which connect four pieces are able to fall and the othello pieces are able to flip. I have also implement to show the winning pieces, allow player to change the game speed and the game board, showing feedback of available move and unavailable move, changing the player labels which display the player turn. I handle all the image files and edit them to fit the game. I have also fixed a number of minor bugs in the game. Apart from coding, I have written doxygen comment for all the methods I wrote, I have done unit tests for a few classes and make sure they follow Bob concise coding convention. My role in the team is being one of the implementation managers, I have reminded my teammates to follow the coding conventions while implementing the classes. Ensure everyone is cleared about the structure of the code received before start implementing them. I have helped other group members who found difficulties on writing the code during the implementation process.

Jake Plumley – Customer Interface Manager

In the assignment I implemented two classes that were ConnectFourSaver and ConnectFourLoader. I also assisted Thomas with the Timer class and edited the ConnectFour class. I also implemented integration testing for both of the classes that I implemented. Whilst writing the code for these classes I ensured that I was following the coding conventions after discussing them in a previous group meetings. I also commented the code ready for Doxygen. I continued my role as customer interface manager so I communicated with the customer if the team had any questions that they wanted to raise. As customer interface manager I also ensured that all team members understood what is required by the customer to suit their requests. To ensure that the guide to development is sufficient I checked that our requirements documentation was to a high standard. I attended all team meetings and along with Thomas Letheby we recorded the group minutes for the majority of the meetings.

NAH Group 2 Contributions Report

Gavin Bailey – Design Manager

In this assignment I had the role of the design manager, where my role was to oversee the design structure of the application. Overall I thought the design we had from the other group was poor as it was overcomplicated and had duplicates many pieces of data e.g. the references to the players are stored in a number of classes. This then made it harder for us to implement some features as we needed to ensure that all references are correct and not referencing a disposed object. My first response was to remove most references to other objects and use accessor methods to an important class such as Game, however this proved to be quite complicated and introduced game breaking bugs which we could not rectify. So unfortunately in the end we decided to keep what we could of NAH1's code intact, which did result in many classes remaining overly complicated.
The section of the application I focused most on was the loading and saving of games. I implemented the Saver, Loader and OthelloSaver classes. I decided that it would be best to use hashing to verify if a file was correct as it would mean that even the smallest change made to the file will fail, e.g. if a player edited positions the grid.txt it would still be valid but will not load due to the hashing. I also worked along side all team members helping and advising them throughout the project.
I also had the role of team leader along with Mathew Lloyd, where we worked together to assign tasks to other team members. I believe we worked well as a team to produce the final application.

Mathew Lloyd – Planning and Quality Manager

In the Assignment 5 I was to be the Planning and Quality Manager. As part of my assigned role I was responsible for planning the teams meetings, the way in which we reported these meetings and the planning of the Assignment in general. I kept up with these responsibilities that have helped to ensure that the team has stayed on track to complete the assignment on time and with the quality of which is to be expected. At first the classes and sub-systems that were inherited from the other group was strange and difficult to comprehend at first but soon we all were able to get to grips with the code and make the changes that we had identified in the assessment through careful design and planning. I delegated the Doxygen management to Tom Letherby once again who completed the task to an acceptable standard. Once again I was in the role of team leader along with Gavin Bailey at which we worked together to assign the tasks to each team member to make the assignment process flow better along with making sure that at all times each group member has something to do. At first there was problems with trying to effectively get people to work on the project due to attempting to understand the other group's code but with regular meetings to pool ideas of how to tackle the project, the code soon became apparent in how to change.
The team in the end did meet enough to keep communication going. The minute's protocol was followed and the minutes of meeting were produced after each meeting. Code Inspections were carried out at regular intervals and was useful in identifying that coding conventions weren't being followed and that there were problems with the project setup. At the end of the assignment I helped to organise the group to get all the classes that were submitted to be ready for submission while also having a small sub team that were assigned at dealing with any previously unfound errors that resulted from the extensive use of threads through the code, which in hindsight should have been found at an earlier point in the designing and dealt with then. At stages when working on the assignment there were several pairs in the team that were implementing the development technique of pair programming.
Other than general management duties I was involved with several classes, my personal classes were ConnectFourAI, along with Jake Plumley, and OthelloAI, I also have provided Unit testing to

these classes. I helped others with their classes, primarily with the AIEasy class. I was also responsible for changing large portions of the Othello and ConnectFour class to make it work in conjunction with the AI classes, I did this with Tyrone Bramwell and Jake Plumley and was always available to help upon request. I also implemented a lot of the testing and checked over other peoples code to ensure that they were following the 'Bob's Coding Conventions'.