School of Information Technologies

Faculty of Engineering & IT

ASSIGNMENT/PROJECT COVERSHEET - INDIVIDUAL ASSESSMENT

Unit of Study: <u>COMP9220 Object Oriented Design</u>

Assignment name: <u>Assignment 1</u>

Tutorial time: <u>8:00-9:00 pm, Monday</u>

Tutor name: <u>Masa Takatsuka</u>

DECLARATION

I declare that I have read and understood the *University of Sydney Academic Dishonesty and Plagiarism in Coursework Policy*, and except where specifically acknowledged, the work contained in this assignment/project is my own work, and has not been copied from other sources or been previously submitted for award or assessment.

I understand that failure to comply with the the *Academic Dishonesty and Plagiarism in Coursework Policy*, can lead to severe penalties as outlined under Chapter 8 of the *University of Sydney By-Law 1999* (as amended). These penalties may be imposed in cases where any significant portion of my submitted work has been copied without proper acknowledgement from other sources, including published works, the internet, existing programs, the work of other students, or work previously submitted for other awards or assessments.

I realise that I may be asked to identify those portions of the work contributed by me and required to demonstrate my knowledge of the relevant material by answering oral questions or by undertaking supplementary work, either written or in the laboratory, in order to arrive at the final assessment mark.

Student ID: <u>450267925</u>

Student name: <u>Tengfei. Shan</u>

Signed Date: <u>27th March, 2015</u>

COMP9220 Object Oriented Design

Assignment 1
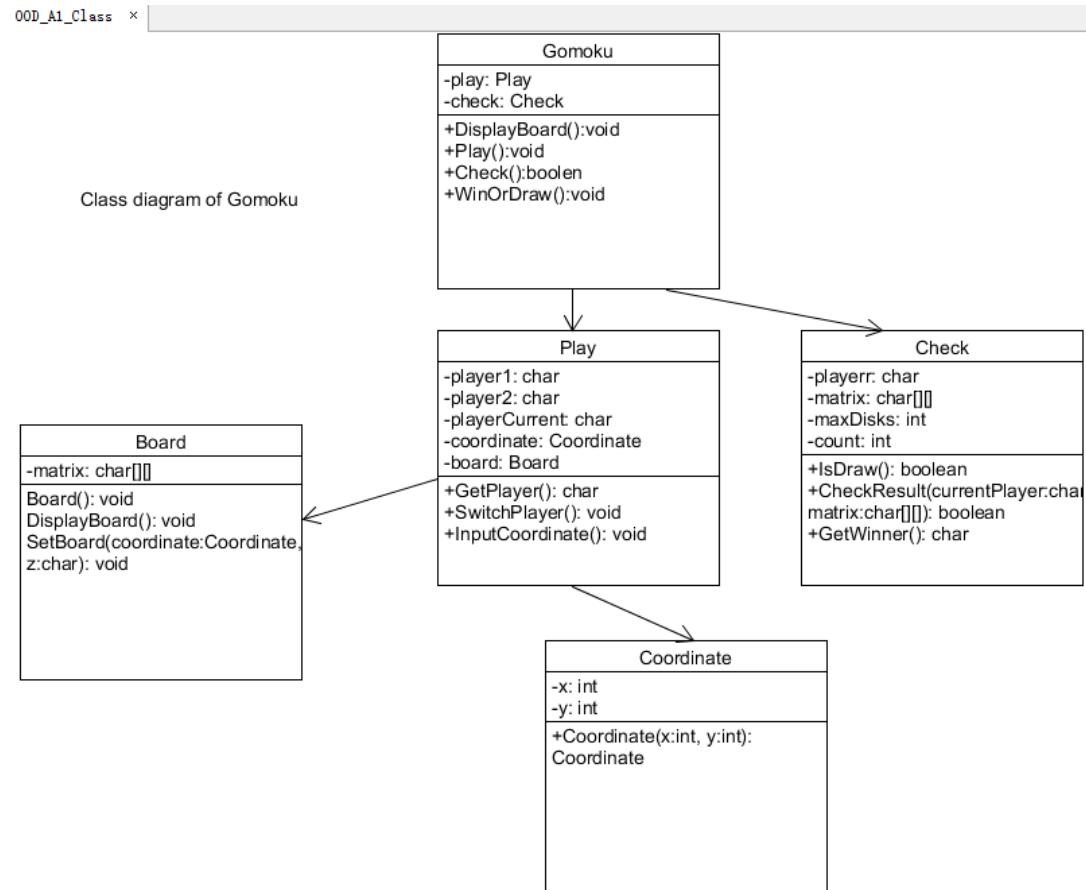
Tengfei. Shan

ID: 450267925

Email: tsha0572@uni.sydney.edu.au

Task 1: Provide how you analysed the requirements. List all objects and functions you've identified from the specification. (40%)

No.	Specification	Analysis	Objects	Functions
1	When the software starts, it displays the empty 15 x 15 grids. At the each grid, either Black or White stone (circle) can be placed.	Game board is a "board: char[15][15]". Two chars to fill the board: 'B', 'W'.	board: Board black stone, white stone	DisplayBoard(): void Play(): void
2	Each player takes 32 disks and chooses one color to use throughout the game.	'B' and 'W' also present two player. maxDisks = 64, so if count == 64 and no one wins, then the game is draw.	player1: char, player2: char, count: int, maxDisks: int	IsDraw(): boolean
3	Black place a disk first followed by white placing a disk.	Player input coordinate (x:int, y:int) to player the game.	coordinate: Coordinate	InputCoordinate(): void SetBoard(coordinate:Coordinate, z:char): void
4	Players take turns in putting their disks on the board.	When one player input a valid coordinate and the game does not stop, the system will switch player so that another player could input coordinate.	currentPlayer: char	SwitchPlayer(): void
5	The game ends when one of player archived an unbroken row of five stones in the same color.	When one player input a coordinate, the system will check if he wins.	Five same color stones in a line	CheckResult(currentPlayer:char, maxtrix:char[][]): boolean GetWinner(): char

Task 2: Provide UML diagrams describing class/class hierarchy and any necessary interaction/activities among objects. (60%: Class Diagrams (30%), Sequence/Activity diagrams (30%))

Class diagram:

Class diagram of Gomoku

Activity diagram:

OOD_A1_Activity ×

Activity Diagram of Gomoku

DisplayBoard

Play

Check: valid step — No

whether the inputed coordinate is within the board or it already exists

Yes

Check: win — Yes

whether the current player wins

No

Check: draw — Yes

whether both of the players run out of disks and no one wins

No

SwitchPlayer

SomeoneWin or Draw