int

UNIVERSITY OF JOHANNESBURG

FACULTY OF SCIENCE

COMPUTER SCIENCE 1A	**SAMPLE DESIGN**

Problem Description

You have been tasked with creating a two-dimensional turn-based simulation to navigate the game world while chasing several targets. The aim is for the human-controlled character to move around the game world, avoiding obstacles and chasing down targets. Additionally, the character must arrest all targets without losing all their energy in order to win the game. -(Sithungu, Coulter & Ogwok, 2025)

Input & Output

Input

Input Description	*Mechanism*
Letter to move the player-controlled character or exit the menu.	Standard Input Stream

Output

Output Description	*Stream (optional)*
Movement of the player (left, right, up, down)	Standard Output Stream

Data Format

Identifier	*Data Type*	*Description*
chOption	Character	Letter to move the player in desired direction or exit the menu
MovePlayer (arrGrid, intRows, intCols, chOption, intEnergy)	Void	Function to move the player and update the energy of the player

Pseudo Code

DECLARE function ➔ let movePlayer (int**, int, int, char, int) be a function to move the player.

Function description ➔ {declare integer variables to represent the destination Row and Column ➔ intDRow =0.
➔ intDCol = 0.
➔intDRow = intPRow.
➔intDCol = intPCol.
Switch(chOption) {
Case 'a':
Case 'A':➔ intDCol--.
Break.

Case 'w':
Case 'W': ➔ intDRow--.
Break.

Case 's':
Case 'S':➔ intDRow++.
Break.

Case 'd':
Case 'D':➔ intDCol++.
Break.
}
}
Let chOption ➔ Read input from standard input stream.
CALL movePlayer (arrGrid, intRows, intCols, chOption, intEnergy) to move the player

UML Activity Diagram