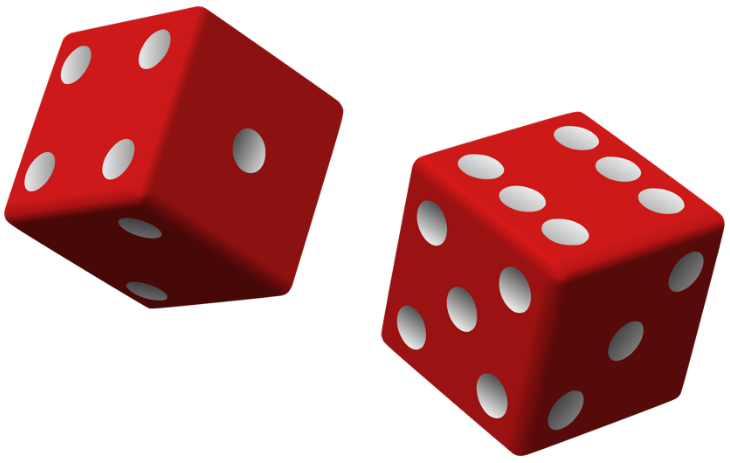
Chance-It

Module Guide



Version 1.0

CMMS Systems

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Sheryll Tabamo

Table of Contents

Module Breakdown

Module Name	Owner	Tester	Intended Abstraction
App Driver	Chris W	Sheryll T	Hides how the program is initialized
Game	Matthew C	Melissa P	Hides how game moves between states based on user selections and game progress
Input/Output	Sheryll T	Melissa P	Hides all screen output logic as well as user input collection and validation
Local Turn	Melissa P	Chris W	Hides logic for walking through a turn and determining the turn score
Network Turn	Melissa P	Sheryll T	Hides network communications for interacting with a server for online play
Dice	Chris W	Matthew C	Hides dice attributes and dice roll functionality
Random	Matthew C	Sheryll T	Hides how random numbers are generated
Probability	Sheryll T	Matthew C	Hides probability calculations for chance to re-roll the first turn sum
Network Protocol	Chris W	Matthew C	Hides connection protocols to create connection with the server
Computer Player	Matthew C Melissa P	Chris W Sheryll T	Hides decision making algorithms for the computer player
High Score	Sheryll T	Chris W	Hides storage and retrieval method for high score data as well as score comparisons

Module Interfaces

Game:

// Pre: randomInit() has been called once
// Post: N/A
// Clean-Up: N/A
// Param: player is a pointer to an unsigned variable
// Return: the winning score of the game, or zero if a computer or network player won
unsigned gameInit();

Input/Output:

// Pre: N/A
// Post: The screen was updated to display new information
// Clean-Up: N/A
// Param: name is a pointer to player's name
// Param: firstRoll displays the value of the firstRoll
// Param: round displays the number of round
// Param: roundScore displays the current round score
// Param: die1 displays the first die
// Param: die1 displays the second die
// Param: score displays the player's score
// Param: opponentScore displays the opponent's score
// Returns: 1 for roll, 2 for stop, 3 for probably, 4 for help, 0 for forfeit
**void displayTurn(char* name, unsigned firstRoll, unsigned round,
unsigned roundScore, unsigned die1, unsigned die2,
unsigned gameScore, unsigned opponentScore);**

// Pre: N/A
// Post: The rules was displayed on the screen
// Clean-Up: N/A
// Param N/A
// Returns N/A
void displayRules();

// Pre: A highscore file exists
// Post: The highscore was displayed on the screen
// Clean-Up: N/A
// Param N/A
// Returns N/A
void displayHighScore();

// Pre: N/A
// Post: The main menu was displayed on the screen and the user selected a game type
// Clean-Up: N/A
// Param N/A
// Returns: 1 for local play, 2 for network play
unsigned displayMainMenu();

```
// Pre: N/A
// Post: The Network Selection Mode was displayed on screen
// Clean-Up: N/A
// Param: N/A
// Returns: 1 for human player, 2 for computer player, 0 to previous menu
unsigned displayNetworkSelectMode();

// Pre: N/A
// Post: The prompt for network information was displayed on screen, and IPaddress and
//      port variables were updated
// Clean-Up: N/A
// Param: IPaddress pointer to the variable holding the ipaddress
// Param: port pointer to the variable holding the port
// Returns: N/A
void displayNetWorkPlayInput(char* IPaddress, unsigned* port);

// Pre: N/A
// Post: The Local Play mode was displayed on screen
// Clean-Up: N/A
// Param: N/A
// Returns: 1 for single player, 2 for multiplayer, 0 to return to previous menu
unsigned displayLocalSelectOpponent();

// Pre: N/A
// Post: The player names were assigned to the given char*
// Clean-Up: N/A
// Param: player1 is a pointer to player 1's name
// Param: player2 is a pointer to player 2's name
// Returns: N/A
void displayLocalPlayGetName(char* player1, char* player2);

// Pre: N/A
// Post: The menu for in-game help was displayed on screen
// Clean-Up: N/A
// Param N/A
// Returns N/A
void displayInGameHelpMenu();
```

Local Turn:

// Pre: N/A
// Post: N/A
// Clean-Up: N/A
// Returns: the final turn score
unsigned localTurn();

Network Turn:

// Pre: N/A
// Post: N/A
// Cleanup N/A
// Return an unsigned of the turn score
unsigned networkTurn();

Dice:

// Pre-Conditions: Must be during a turn
// Post-Conditions: A random number was generated
// Clean-Up: N/A
// Returns: The random number
int rollDie();

Random:

// Generate a randomized integer value between the given parameters
// Pre: randomInit has been called once, and min < max
// Post: N/A
// Clean-Up: N/A
// Returns: an integer in the set [min,max]
int getRandomInt(int min, int max);

// Initializes the random module, must be called before any other functions
// Pre: N/A
// Post: N/A
// Clean-Up: N/A
void randomInit();

Probability:

// Pre: N/A
// Post: N/A
// Clean-Up: N/A
// Param sum is the number to check the probability of re-rolling
// Returns: the probability of re-rolling sum
double getProbability(int sum);

Network Protocol:

// Pre: A network game is chosen
// Post: A connection to a server was made
// Clean-Up: Close connection after the game is finished
void connectInit(char* IPaddress, int port);

Computer Player:

// Determines the computer player's decision to roll or stop.
// Pre: N/A
// Post: N/A
// Return 0 for stop, or 1 for roll again
// Cleanup N/A

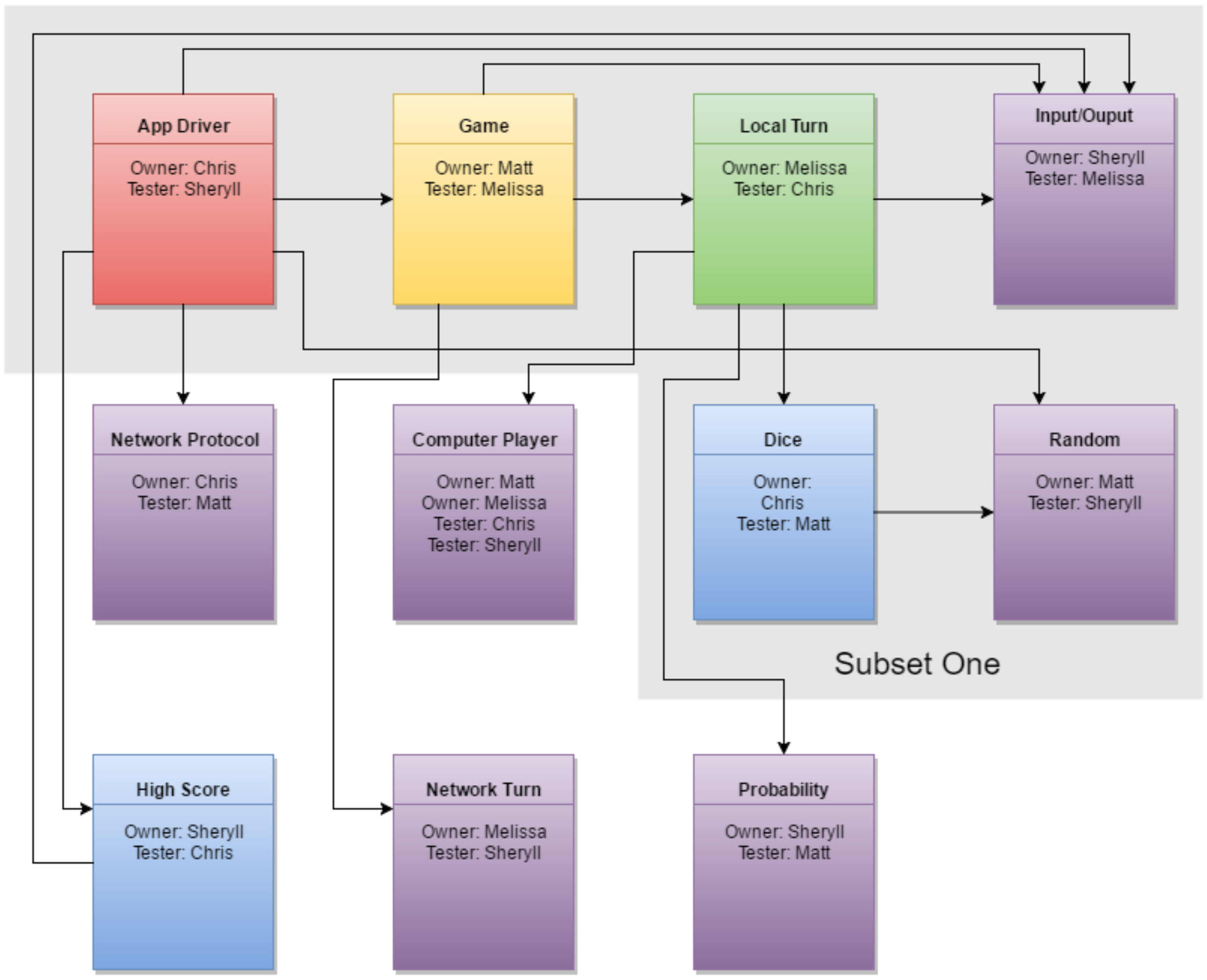
```
unsigned getDecision(unsigned roundNumber, unsigned turnNumber,
                unsigned turnScore, unsigned p1Score,
                unsigned p2Score, unsigned probability);
```

High Score:

// Pre: a file for highscore exists
// Post: The highscore was displayed on screen
// Clean up: N/A
// Param N/A
// returns N/A
void getHighScore();

// Pre: a file for highscore exists
// Post: The highscore has been amended with new information, if necessary
// Clean up: N/A
// Param: name a pointer to the player's name
// Param: date a pointer to the date of the game play
// Param: score takes in the value of the player’s score
// Returns: N/A
void amendHighScore(char* name, char* date, unsigned score);

Uses Hierarchy


App Driver
Owner: Chris
Tester: Sheryll
Game
Owner: Matt
Tester: Melissa
Local Turn
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Input/Ouput
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Owner: Chris
Tester: Matt
Computer Player
Owner: Matt
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Tester: Chris
Tester: Sheryll
Dice
Owner:
Chris
Tester: Matt
Random
Owner: Matt
Tester: Sheryll
Subset One
High Score
Owner: Sheryll
Tester: Chris
Network Turn
Owner: Melissa
Tester: Sheryll
Probability
Owner: Sheryll
Tester: Matt