**Mini Golf Course Automation**

Overview

Please see the system flowchart, use cases, and class diagrams on the following pages.

After completing each hole, the user swipes their card at that hole's swipe station, and enters the number of strokes.  The card-swipe stations also display the player's name and current score (the number of strokes over or under par, so far).

Assumptions

1. The central computer, card-swipe stations, and other associated hardware has already been installed and the network is up and running.

2. In the event of a network or computer failure, allow players to continue playing without the automated scoring, and give them coupons for another round of golf on a different day. There is no significant cost (other than lost revenue) associated with giving an existing customer a free round of golf to maintain good will.

Classes

For each player, a new Player object is instantiated from class Player. Database operations make use of the Database class. The card swipe station may be represented by a separate class as well.

Methods

Some key methods used in the software include:

boolean processCustomerPayment(double paymentAmount, String playerName)

// Processes and confirms payments from customers/players/golfers

void enterPlayerName()

// Inputs player’s name and updates the Player object and the database using Player.setPlayerName and Database.storePlayerName methods, respectively

void generatePlayerCard(String playerName)

// Generates/prints player card

String processSwipe()

// Reads Player name from Player card

boolean inputScore()

// Inputs the Player’s score and whether they lost a ball from the card-swiper keypad and updates Player and Database using Player.incrementScoree and Database.storeScore methods, respectively

int lostBall(bool lostBall, int score)

// Decrements Player’s score if they lost a ball during play

void isHoleInOne(int score)

// Display a special message if a hole in one occurred

boolean writeScoreToDatabase(int currentScore)

// Sends information to central server for storage

int determineHoleScore(int hole, int playerStrokes)

// Calculates how many strokes over/under par the player is on any given hole

void displayScore()

// Reads Player’s score using Player.getScore method and displays it on the card-swiper display

void displayRules()

// Displays rules of the game on card-swipe station display

void generateScoreReport(Player player, Database database)

// Generates score report for Player

void processFreeGame(String playerName)

// If hole-in-one (score = 1) on 18th hole, process/generate a free game coupon for the player



System Flowchart



Use Cases



Class Diagrams