Com Sci 31 – Winter 2019

Project 5 Report

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Discussion – 1C

# Major Obstacles Overcame

* Handling multiple files was a somewhat tedious task, but completing this project gave me a deeper understanding of how classes work.
* “Creational Pattern”, using one class to create objects of another class, was a new and somewhat complicated concept. However, making flow diagrams manually helped me understand how the Ticket and BoxOffice classes were interacting with each other.
* Understanding and implementing enum as a user defined datatype was another obstacle.
* Understanding how private and public variables work in a class, and how public methods can be used to access private data from a class was another feature that working on this project brushed up.
* Besides incorporating the Project5Helper class and its methods into my project, I also tried to understand how they actually work, and this was a revision of string processing which we covered in project 3.
* I ensured to include comments wherever the code’s functionality was non-obvious to ensure greater readability and comprehension.
* I tried to keep code as minimal, effective, and transparent as possible.

# Test Cases

Since the project specifications mention not to handle erroneous test cases, we go on to systematically categorize and examine good test cases. This leads to a total of 38 test cases, which have been categorized below:

First, we handle buyTicket() function test cases, since in these, handling is completely user determined, not according to any algorithm. The rest of the three methods - buyRoyceHallStudentTicket(), buyRoyceHallStaffTicket(), and buyRoyceHallTicket() behave quite similarly, and hence they will be tested together, later.

1. buyTicket() function test cases

BoxOffice b;

Ticket t = b.buyTicket("Pavillion Row 13", 45, "Dodgers vs. Brewers", "Dodger Stadium", Ticket::KIND::ATHLETICGAME, "August 1, 7:30PM" );

t.setPrice(150); // mprice = 150

t = b.buyTicket("Pauley Row 15", 32, "Dodgers vs. Brewers", "Pauley Pavillion", Ticket::KIND::MOVIE, "September 3, 9:30PM" );

t.setPrice(300); // mprice = 300

Next, we categorize according to KIND, Orchestra/ Balcony, and AM/PM (if applicable). Within each category, we consider tickets for students (buyRoyceHallStudentTicket()), staff (buyRoyceHallStaffTicket()), as well as regular customers (buyRoyceHallTicket()).

1. (a) ATHLETICGAME Orchestra tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Orchestra Row 10", 15, "Basketball", Ticket::KIND::ATHLETICGAME, "January 10, 7:30AM"); // mprice = 120

t = b.buyRoyceHallStaffTicket("Orchestra Row 10", 15, "Basketball", Ticket::KIND::ATHLETICGAME, "January 10, 7:30AM"); // mprice = 130

t = b.buyRoyceHallTicket("Orchestra Row 10", 15, "Basketball", Ticket::KIND::ATHLETICGAME, "January 10, 7:30AM"); // mprice = 150

(b) ATHLETICGAME Balcony tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Balcony Row 10", 15, "Basketball", Ticket::KIND::ATHLETICGAME, "January 10, 7:30PM"); // mprice = 45

t = b.buyRoyceHallStaffTicket("Balcony Row 10", 15, "Basketball", Ticket::KIND::ATHLETICGAME, "January 10, 7:30PM"); // mprice = 55

t = b.buyRoyceHallTicket("Balcony Row 10", 15, "Basketball", Ticket::KIND::ATHLETICGAME, "January 10, 7:30PM"); // mprice = 75

1. (a) MOVIE Orchestra tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Orchestra Row 15", 40, "Sherlock", Ticket::KIND::MOVIE, "November 15, 9:50AM"); // mprice = 20

t = b.buyRoyceHallStaffTicket("Orchestra Row 15", 40, "Sherlock", Ticket::KIND::MOVIE, "November 15, 9:50AM"); // mprice = 22.5

t = b.buyRoyceHallTicket("Orchestra Row 15", 40, "Sherlock", Ticket::KIND::MOVIE, "November 15, 9:50AM"); // mprice = 25

(b) MOVIE Balcony tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Balcony Row 20", 40, "Sherlock", Ticket::KIND::MOVIE, "November 15, 9:50PM"); // mprice = 10

t = b.buyRoyceHallStaffTicket("Balcony Row 20", 40, "Sherlock", Ticket::KIND::MOVIE, "November 15, 9:50PM"); // mprice = 11.25

t = b.buyRoyceHallTicket("Balcony Row 20", 40, "Sherlock", Ticket::KIND::MOVIE, "November 15, 9:50PM"); // mprice = 12.5

1. (a) (i) CONCERT AM Orchestra tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Orchestra Row 32", 45, "Mozart", Ticket::KIND::CONCERT, "July 20, 10:50AM"); // mprice = 70

t = b.buyRoyceHallStaffTicket("Orchestra Row 32", 45, "Mozart", Ticket::KIND::CONCERT, "July 20, 10:50AM"); // mprice = 80

t = b.buyRoyceHallTicket("Orchestra Row 32", 45, "Mozart", Ticket::KIND::CONCERT, "July 20, 10:50AM"); // mprice = 100

1. (ii) CONCERT PM Orchestra tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Orchestra Row 35", 45, "Mozart", Ticket::KIND::CONCERT, "June 21, 10:50PM"); // mprice = 100

t = b.buyRoyceHallStaffTicket("Orchestra Row 35", 45, "Mozart", Ticket::KIND::CONCERT, "June 21, 10:50PM"); // mprice = 110

t = b.buyRoyceHallTicket("Orchestra Row 35", 45, "Mozart", Ticket::KIND::CONCERT, "June 21, 10:50PM"); // mprice = 130

1. (i) CONCERT AM Balcony tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Balcony Row 40", 20, "Mozart", Ticket::KIND::CONCERT, "February 20, 10:30AM"); // mprice = 20

t = b.buyRoyceHallStaffTicket("Balcony Row 40", 20, "Mozart", Ticket::KIND::CONCERT, "February 20, 10:30AM"); // mprice = 30

t = b.buyRoyceHallTicket("Balcony Row 40", 20, "Mozart", Ticket::KIND::CONCERT, "February 20, 10:30AM"); // mprice = 50

(b) (ii) CONCERT PM Balcony tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Balcony Row 30", 35, "Mozart", Ticket::KIND::CONCERT, "January 19, 8:00PM"); // mprice = 35

t = b.buyRoyceHallStaffTicket("Balcony Row 30", 35, "Mozart", Ticket::KIND::CONCERT, "January 19, 8:00PM"); // mprice = 45

t = b.buyRoyceHallTicket("Balcony Row 30", 35, "Mozart", Ticket::KIND::CONCERT, "January 19, 8:00PM"); // mprice = 65

1. (a) (i) OTHER AM Orchestra tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Orchestra Row 65", 100, "Batman", Ticket::KIND::OTHER, "August 15, 11:50AM"); // mprice = 50

t = b.buyRoyceHallStaffTicket("Orchestra Row 32", 100, "Batman", Ticket::KIND::OTHER, "August 15, 11:50AM"); // mprice = 60

t = b.buyRoyceHallTicket("Orchestra Row 65", 100, "Batman", Ticket::KIND::OTHER, "August 15, 11:50AM"); // mprice = 80

(a) (ii) OTHER PM Orchestra tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Orchestra Row 85", 85, "Batman", Ticket::KIND::OTHER, "May 19, 7:50PM"); // mprice = 80

t = b.buyRoyceHallStaffTicket("Orchestra Row 85", 85, "Batman", Ticket::KIND::OTHER, "May 19, 7:50PM"); // mprice = 90

t = b.buyRoyceHallTicket("Orchestra Row 85", 85, "Batman", Ticket::KIND::OTHER, "May 19, 7:50PM"); // mprice = 110

1. (i) OTHER AM Balcony tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Balcony Row 72", 35, "Batman", Ticket::KIND::OTHER, "September 19, 9:45AM"); // mprice = 10

t = b.buyRoyceHallStaffTicket("Balcony Row 72", 35, "Batman", Ticket::KIND::OTHER, "September 19, 9:45AM"); // mprice = 20

t = b.buyRoyceHallTicket("Balcony Row 72", 35, "Batman", Ticket::KIND::OTHER, "September 19, 9:45AM"); // mprice = 40

1. (ii) OTHER PM Balcony tickets (Student/ Staff/ Regular)

t = b.buyRoyceHallStudentTicket("Balcony Row 30", 25, "Batman", Ticket::KIND::OTHER, "December 20, 8:30PM"); // mprice = 25

t = b.buyRoyceHallStaffTicket("Balcony Row 30", 25, "Batman", Ticket::KIND::OTHER, "December 20, 8:30PM"); // mprice = 35

t = b.buyRoyceHallTicket("Balcony Row 30", 25, "Batman", Ticket::KIND::OTHER, "December 20, 8:30PM"); // mprice = 55