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a: One obstacle that I overcame was getting used to classes in c++. I have previously created projects in Java that utilized classes, but the syntax and logic is a bit different in c++. Additionally, I had never used header files before, so this took some getting used to and understanding. The new syntax was a lot of trouble because I would try syntax that worked in Java, try to build my code, and it would not build.

b: Test cases:

//test Ticket()

Ticket t1("row", 10, "event", "venue", 35, Ticket::CONCERT, "day time");

assert(t1.getRow() == "row");

assert(t1.getSeat() == 10);

assert(t1.getEvent() == "event");

assert(t1.getVenue() == "venue");

assert(t1.getPrice() == 35);

assert(t1.getKind() == Ticket::CONCERT);

assert(t1.getDayTime() == "day time");

Ticket t2("Pavillion Row 13", 45, "Dodgers vs. Brewers",

"Dodger Stadium", 150.00, Ticket::ATHLETICGAME, "August 1, 7:30PM");

assert(t2.getRow() == "Pavillion Row 13");

assert(t2.getSeat() == 45);

assert(t2.getEvent() == "Dodgers vs. Brewers");

assert(t2.getVenue() == "Dodger Stadium");

assert(t2.getPrice() == 150);

assert(t2.getKind() == Ticket::ATHLETICGAME);

assert(t2.getDayTime() == "August 1, 7:30PM");

//testing BoxOffice

BoxOffice b;

//testing buyTicket()

Ticket t = b.buyTicket("row", 1, "event", "venue", Ticket::OTHER, "daytime");

assert(t.getRow() == "row");

assert(t.getSeat() == 1);

assert(t.getEvent() == "event");

assert(t.getVenue() == "venue");

assert(t.getKind() == Ticket::OTHER);

assert(t.getPrice() == 0);

assert(t.getDayTime() == "daytime");

//testing buyRoyceHallTicket

t = b.buyRoyceHallTicket("Orchestra Row A", 12, "Barry Manilow Live In Concert",

Ticket::KIND::CONCERT, "November 1, 7:30PM");

assert(t.getRow() == "Orchestra Row A");

assert(t.getSeat() == 12);

assert(t.getEvent() == "Barry Manilow Live In Concert");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::CONCERT);

assert(t.getPrice() == 130);

assert(t.getDayTime() == "November 1, 7:30PM");

t = b.buyRoyceHallTicket("Balcony Row A", 12, "Barry Manilow Live In Concert",

Ticket::KIND::ATHLETICGAME, "November 1, 10:00AM");

assert(t.getRow() == "Balcony Row A");

assert(t.getSeat() == 12);

assert(t.getEvent() == "Barry Manilow Live In Concert");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::ATHLETICGAME);

assert(t.getPrice() == 75);

assert(t.getDayTime() == "November 1, 10:00AM");

t = b.buyRoyceHallTicket("Orchestra Row A", 12, "Barry Manilow Live In Concert",

Ticket::KIND::ATHLETICGAME, "November 1, 10:00AM");

assert(t.getRow() == "Orchestra Row A");

assert(t.getSeat() == 12);

assert(t.getEvent() == "Barry Manilow Live In Concert");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::ATHLETICGAME);

assert(t.getPrice() == 150);

assert(t.getDayTime() == "November 1, 10:00AM");

//testing buyRoyceHallStudentTicket()

t = b.buyRoyceHallStudentTicket("Pavillion Row U", 20,

"Episode VII: The Force Awakens", Ticket::MOVIE,

"September 1, 7:30PM");

assert(t.getRow() == "Pavillion Row U");

assert(t.getSeat() == 20);

assert(t.getEvent() == "Episode VII: The Force Awakens");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::MOVIE);

assert(t.getPrice() == 10);

assert(t.getDayTime() == "September 1, 7:30PM");

t = b.buyRoyceHallStudentTicket("Pavillion Row U", 20,

"Gymnastics", Ticket::ATHLETICGAME,

"September 1, 7:30PM");

assert(t.getRow() == "Pavillion Row U");

assert(t.getSeat() == 20);

assert(t.getEvent() == "Gymnastics");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::ATHLETICGAME);

assert(t.getPrice() == 45);

assert(t.getDayTime() == "September 1, 7:30PM");

t = b.buyRoyceHallStudentTicket("Orchestra Row U", 20,

"Lorde", Ticket::CONCERT,

"September 1, 7:30PM");

assert(t.getRow() == "Orchestra Row U");

assert(t.getSeat() == 20);

assert(t.getEvent() == "Lorde");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::CONCERT);

assert(t.getPrice() == 70);

assert(t.getDayTime() == "September 1, 7:30PM");

//testing buyRoyceHallStaffTicket()

t = b.buyRoyceHallStaffTicket("Balcony Row J", 120,

"An Evening With David Sedaris", Ticket::OTHER,

"October 1, 7:30PM");

assert(t.getRow() == "Balcony Row J");

assert(t.getSeat() == 120);

assert(t.getEvent() == "An Evening With David Sedaris");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::OTHER);

assert(t.getPrice() == 35);

assert(t.getDayTime() == "October 1, 7:30PM");

t = b.buyRoyceHallStaffTicket("Orchestra Row J", 120,

"Spiderman: Into The Spiderverse", Ticket::MOVIE,

"October 1, 7:30PM");

assert(t.getRow() == "Orchestra Row J");

assert(t.getSeat() == 120);

assert(t.getEvent() == "Spiderman: Into The Spiderverse");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::MOVIE);

assert(t.getPrice() == 22.5);

assert(t.getDayTime() == "October 1, 7:30PM");

t = b.buyRoyceHallStaffTicket("Orchestra Row J", 120,

"Marina And The Diamonds Live", Ticket::CONCERT,

"October 1, 11:00AM");

assert(t.getRow() == "Orchestra Row J");

assert(t.getSeat() == 120);

assert(t.getEvent() == "Marina And The Diamonds Live");

assert(t.getVenue() == "Royce Hall");

assert(t.getKind() == Ticket::CONCERT);

assert(t.getPrice() == 60);

assert(t.getDayTime() == "October 1, 11:00AM");