Arena Project – Eric Murphy

Introduction:
Most people have been to an area to watch a sports team or event. The operation requires a high level of accuracy when scheduling events and managing sales. This project is aimed to automate all arena activities including ticket sales, food and drink sales, parking, staff, and other financial aspects. This project will expose Computer Science students to a real world problem that will prepare them to be good problem solvers in the industry of software development.
Consider that you are tasked with building an Arena Management System. The management system allows the owner to schedule events, manage staff, manage finances, manage parking, and sell tickets, food, drinks, and other apparel.

Description: Project Details:
ADT's
1. Tickets: This ADT contains all information related to the management of ticket sales. It has the following data members. (There should be 50 sections with 10 seats per section in this arena. Each seat should cost 45$)

a. Section number
b. Seat number
c. Price
d. Date
e. Time
f. Sold (Boolean)
g. id

2. Schedule: This ADT contains all information related to the scheduling of events. It has the following data members.
a. Date
b. Time
c. Event name

3. Parking: This ADT contains all information related to the management of parking. It has the following data members.
a. Section number
b. Parking space number
c. Price
d. Available (Boolean)

4. Staff: This ADT contains all information related to the management of staff. It has the following data members.
a. Id
b. Name
c. Job
d. Salary

5. Bank Account: This ADT contains all information related to the management of finances. It has the following data members.
a. Total Sales
b. Cash on hand
c. Debt

6. Concession Stand: This ADT contains all information related to the sale of food, drinks, and merchandise. It has the following data members.
a. Hot dogs (3$)
b. Peanuts (1$)
c. Burgers (5$)
d. Soft drinks (1.50$)
e. Beer (8$)
f. Jersey (100$)
Note: Each of the items sold at the Concession Stand needs to have its own price and inventory.

Program Flow:

The operator of this program will be the owner of the arena, with little knowledge about mputers. Moving forward, this owner who operates the program is called a "user".

After launching the program, the main menu is displayed on the screen for the user, something like this:

Welcome to Arena Management System. Please choose an action:

Main Menu:

1. Manage Tickets

2. Manage Schedule

3. Manage Parking

4. Manage Staff

5. Manage Bank Account

6. Manage Concession Stand

After selecting 1 or 2 or …. or 6, the program prints a different sub-menu for each menu. For Example:

Option 1:

1. Show all ticket's info

2. Show all available tickets

3. Show all unavailable tickers

4. Sell/Refund ticket

5. Update ticket info

6. Search for ticket by date

7. Main menu: takes the user back to the main menu

Note: You can assume that all input from the user will not have any errors in it.

User Stories:

Creating a list of user stories is the best way to break up a project into multiple smaller projects/functions that are easier to implement.

1. As a user, I want to be able to show all ticket's info

2. As a user, I want to be able to show all available tickets

3. As a user, I want to be able to show all unavailable tickets

4. As a user, I want to be able to sell a ticket

5. As a user, I want to be able to refund a ticket

6. As a user, I want to be able to be able to refund a ticket by section (adjust bank account accordingly)

7. As a user, I want to be able to print a ticket by date

8. As a user, I want to be able to create a new event and have tickets generated automatically

9. As a user, I want to be able to print all event's information

10. As a user, I want to be able to adjust an event's information (also adjust tickets accordingly)

11. As a user, I want to be able to cancel an event, refund all ticket sales, and adjust the bank account accordingly

12. As a user, I want to be able to print all events on a certain date

13. As a user, I want to be able to print all parking information

14. As a user, I want to be able to print the info of a certain parking section

15. As a user, I want to be able to, given a number by the user, print all parking section's that have at least that many open parking spots

16. As a user, I want to be able to adjust the of parking spot's availability

17. As a user, I want my parking lot to have 20 sections of 30 parking spots costing 10$ each

18. As a user, I want to be able to adjust the bank account according to the number of parking spots sold

19. As a user, I want to be able to adjust staff info

20. As a user, I want to be able to print all staff

21. As a user, I want to be able to print staff given an id number

22. As a user, I want to be able to print staff of a certain job type

23. As a user, I want to be able to hire new staff

24. As a user, I want to be able to fire existing staff

25. As a user, I want to be able to print bank account information

26. As a user, I want to be able to adjust bank account information

27. As a user, I want to be able to calculate a given months ticket sales

28. As a user, I want to be able to pay off a given amount (by user) of debt directly from cash on hand

29. As a user, I want to be able to print out how long it will take for the arena to pay off its debt (average three latest months of sales to calculate)

30. As a user, I want to be able to print total lifetime sales amount from the concession stand

31. As a user, I want to be able to order new inventory and adjust the bank account accordingly (the cost of ordering inventory is 50% of the sale price)

32. As a user, I want to be able to sell items from the concession stand (adjusting bank account accordingly)

33. As a user, I want to be able to know when an item is sold out.

34. As a user, I want to be able to print all concession stand info