

Use Case Name 1: View NBA Basketball Data

Actors:

- Basketball Fan (Selects teams to visit and souvenirs to purchase on their vacation, and views NBA basketball data)
- Database System (Loads NBA basketball data from the database)

Triggers:

- The Basketball Fan indicates that they want to view NBA basketball data.

Preconditions:

- From the main menu, the basketball fan clicked on the button to view team data.

Post-conditions:

- The program will show basketball data to the Basketball Fan from the database.

Normal Flow:

1. The Basketball Fan will indicate that they want to view basketball data by selecting the “view NBA basketball info” button from the main menu.
2. The database system will provide the system a list of teams that the Basketball Fan is able to visit
3. The Basketball Fan will select the name of team they wish to view the data of.
4. The database system will provide the system with a list of the conference, division, team name, arena location, stadium capacity, join year, and coach.
5. The Basketball Fan will view the data of the selected team.
6. The Basketball Fan will select the “main menu” button to exit the system.

Alternate Flows:

3A1: Instead of selecting a team, the basketball fan decides to return to the main menu.

1. The Basketball Fan will select the “main menu” button to exit the system
2. The use case ends.

6A1: The Basketball Fan decides to view data for another team instead of selecting the “back” button to exit the system.

1. The Basketball Fan will select the name of the team they wish to view the data of
2. The use case returns to step 4 and continues.

Use Case Name 2: Update NBA Basketball Data

Actors:

- Admin (Determines selections possible in the vacation planner)
- Database System (Loads NBA basketball data from the database)

Triggers:

- The admin indicates that they want to update NBA Basketball data.

Preconditions:

- The admin has already logged in to gain admin privileges.

Post-conditions:

- The program will update database data based on changes specified by the admin.

Normal Flow:

7. The admin will enter the menu to update the database after logging in from the login menu.
8. The system will display buttons to the admin so that the admin will have the ability to add team data, delete a team, or modify existing team data.
9. The admin will select a button to modify existing team data.
10. The database system will provide the system with a list of teams from the database.
11. The admin will select a team.
12. The system will present data related to that team to the admin, and a button to save changes after changes are made.
13. The admin will select and modify the data presented as necessary.
14. The admin will click on the save changes button.
15. The database system will update the database with the changes the admin specified.
16. The database system will let the admin know that it has successfully updated the database.
17. The admin will select the "main menu" button to exit the system.

Alternate Flows:

3A1: Instead of selecting to modify existing team data, the admin decides to add a team.

3. The admin will select the “add a team” button.
4. The system will prompt the admin with forms for each detail of the new team.
5. The system will display a save new team button.
6. The admin inputs the data of the team they wish to add.
7. The admin selects the “save new team” button.
8. The system adds the new team to the existing database.
9. The use case continues to step 11.

3A2: Instead of selecting to modify existing team data, the admin decides to delete a team.

1. The admin will select the “delete a team” button.
2. The system will show a list of teams to delete from the database.
3. The system will display a button to delete a selected team.
4. The admin selects a team to delete.
5. The admin selects the “delete team” button.
6. The system removes the team from the existing database.
7. The use case continues to step 11.

3A3: Instead of selecting to modify existing team data, the admin decides to return to the main menu.

1. The admin will select the “main menu” button.
2. The system returns to the main menu.
3. The use case ends.

Use Case Name 3: Plan a Basketball Vacation

Actors:

- Basketball Fan (Selects teams to visit and souvenirs to purchase on their vacation, and views NBA basketball data)
- Admin (Determines selections possible in the Vacation planner)
- Database System (Loads NBA basketball data from the database)

Triggers:

- The Basketball Fan selects the “Plan an NBA Vacation” button on the main menu.

Preconditions:

- Program is at main menu

Post-conditions

- Basketball Fan will see a results menu that will display their team and souvenir selections they made in their NBA vacation plan, as well as data for souvenir price and distance traveled.

Normal Flow

1. The Basketball Fan selects the “Plan an NBA Vacation” Button on the main menu.
2. The system will present the Basketball Fan with 4 different vacation plans to choose from:
 - a. Denver Nuggets Plan
 - b. Custom Plan (Order Specified)
 - c. Detroit Pistons Plan
 - d. Custom Plan (Shortest Distance)
3. The Basketball Fan will select the “Custom Plan (Shortest Distance)” button and will select the next button to proceed.
4. The database system will provide the system with a list of teams that the user is able to visit
5. The Basketball Fan will indicate the teams they desire to visit by selecting a checkbox next to the team name and selecting the “proceed to souvenir purchase” button
6. The data the Basketball Fan inputted in step 5 will be loaded into the system.
7. The database system will provide the system with a list of souvenirs that the Basketball Fan is able to purchase from each team, including the price of each souvenir item
8. The Basketball Fan will indicate the souvenirs they desire to purchase by typing in the number of the quantity of a souvenir item to purchase next to the name of the souvenir item and selecting the “proceed to trip results” button.
9. The data the Basketball Fan inputted in step 8 will be loaded into the system.
10. The system will provide the Basketball Fan with a table of the team the Basketball Fan has selected to visit, the distance between each team, the total distance to be traveled, and a receipt of the souvenirs to purchase including a sum of the souvenir prices
11. The Basketball Fan will view the vacation plan information.
12. The Basketball Fan will select the “main menu” button to exit the system.

Alternate Flows:

3A1: Instead of selecting the “Custom Plan (Shortest Distance)” plan, the user instead selects the “Denver Nuggets Plan” plan

1. The user will select the "Denver Nuggets Plan" plan and will select the next button to proceed.
2. The database system will provide the system with a list of the teams that the fan can visit
3. The Basketball Fan will indicate the city that they want to visit after the Denver Nuggets, and select "Proceed to souvenir purchasing"
4. The use case continues to step 6

3A2: Instead of selecting the "Custom Plan (Shortest Distance)" plan, the user instead selects the "Custom Plan (Order Specified)" plan

1. The Basketball Fan will select the "Custom Plan (Order Specified)" plan and will select the next button to proceed.
2. The database system will provide the system with a list of teams that the user is able to visit
3. The Basketball Fan will indicate the cities that they wish to visit and the order that they wish to visit them in and then select "proceed to souvenirs"
4. The database system will load the teams that the user indicated they want to visit in the specified order they wish to visit them in
5. The use case continues to step 7

3A3: Instead of selecting the "Custom Plan (Shortest Distance)" plan, the user instead selects the "Detroit Pistons Plan" plan

1. The Basketball Fan will select the "Detroit Pistons Plan" plan and will select the next button to proceed.
2. The database system will provide the system with a list of teams that the user is able to visit
3. The Basketball Fan will confirm that they wish to visit all teams starting from the Detroit Pistons and then select "proceed to souvenirs"
4. The database system will load the teams that the user indicated they want to visit in the specified order they wish to visit them in
5. The use case continues to step 7

5A1: The Basketball Fan desires to choose a different vacation plan from the one they selected.

1. The Basketball Fan will indicate they want to select a different plan by selecting the "Change plan" button
2. The use case continues from step 2

8A1: The Basketball Fan desires to choose different Teams to visit then the ones they selected.

1. The Basketball Fan will indicate they want to select different teams by selecting the "Change selected teams" button

2. The use case continues from step 4

11A1: The Basketball Fan desires to make a new trip plan instead of going to the main menu

1. The Basketball Fan will indicate they want to plan a new trip by selecting the “Plan a New Trip” button
2. The use case continues from step 2

Use Case Name 4: View Graph Traversals

Actors:

- Basketball Fan (Selects teams to visit and souvenirs to purchase on their vacation, and views NBA basketball data)
- Database System (Loads NBA basketball data from the database)

Triggers:

- The Basketball Fan indicates that they want to view a Graph Traversal of NBA team data.

Preconditions:

- From the main menu, the Basketball fan clicked on a button to view graph traversals

Post-conditions:

- The program will show graphs traversals of NBA distance data to the Basketball Fan

Normal Flow:

1. The Basketball Fan will indicate that they want to view graph traversal by selecting the “view team graph traversals” button from the main menu.
2. The database system will provide the system a list of teams that the Basketball Fan is able to visit
3. The Basketball Fan will select between three graph traversals: MST, DFS from Orlando Magic, or BFS from Los Angeles Lakers
4. The database system will provide the system with information about each city and the distance to other cities, and calculate the corresponding graph traversal based on which traversal selection the basketball fan chose.
5. The Basketball Fan will view the given graph traversal
6. The Basketball Fan will select the “main menu” button to exit the system.

Alternate Flows:

6A1: Instead of going to the main menu, the fan selects another graph traversal

1. The use case continues from step 4