Your agile team is to write an application that stores the given National Football League (NFL) information into an ordered or unordered map (not using the map or unordered map STL or the QT map). The underlying data structure of the map is the choice of the team. The application will allow football fans to plan their dream vacation.

1. Write at least 10 agile stories (including description, tasks, test scenarios, and story points) before any software development.
2. Create a list of the NFL teams sorted by team name.
3. Create a list of NFL stadiums and their corresponding team name sorted by team name.
4. Create a list of American Football Conference teams sorted by team name.
5. Create a list of National Football Conference teams sorted by team name.
6. Create a list of stadiums that have an “open” stadium roof type and their corresponding team name sorted by stadium name.
7. Create a list of NFL star players and their corresponding team name sorted by team name.
8. Create a list of NFL teams, their stadium names, their seating capacity, their corresponding location sorted by seating capacity.
9. Create a list of NFL teams, their stadium names, their surface type, and their corresponding location sorted by surface type.

**Planning a vacation:**

1. Design trips to visit each NFL stadium travelling the shortest distance starting at Los Angeles Memorial Coliseum using *Dijkstra’s* algorithm (note: each trip begins at Los Angeles Memorial Coliseum).
2. Provide the capability for a football fan to plan his/her dream vacation by allowing a football fan to choose their starting stadium and all the other stadiums they would like to visit. Use *Dijkstra’s* or the A\* algorithm to calculate the shortest distance for this dream vacation using the order specified.
3. Determine the minimum spanning tree (MST) connecting all the NFL stadiums using Prim’s or Kruskal’s algorithm. Calculate the associated mileage.
4. Provide the capability to track souvenirs purchased by the football fans on their trips and the corresponding costs per trip.
5. Output the total revenue for each stadium including a grand total for all the stadiums per trip.
6. Provide the ability to modify stadium information if a team moves into a new stadium. (administrator only) (The Los Angeles Rams are planning to move to Farmers Field in 2019).
7. One should be able to output all the information related to a particular football team (team name, stadium name, seating capacity, location, conference, surface type, stadium roof type, star player).
8. What is the total seating capacity of the NFL teams?
9. Provide the ability to add a new team and corresponding stadium and capacity if NFL football decides to add new teams. (See expansion data - administrator only)
10. One should be able to modify (add/delete/change) the souvenirs list and their prices per NFL team. (administrator only)

The initial souvenir list is a follows

1. Signed helmets $72.99
2. Autographed Football $49.39
3. Team pennant $17.99
4. Team picture $19.99
5. Team jersey $185.99

(Each team needs its own souvenir list so it can be modified)

Please let me know your partners by October 26th (three points will be deducted from your score if you do not meet this deadline). All projects are due by December 5th. **No late projects will be accepted.** Your team must demonstrate your project to me before it will be graded. Each teammate must identify their accomplishments on the project. Not all team members will necessarily earn the same score.

1. Design a very readable, easy to use interface to demonstrate your program.
2. Contingency handling should include addressing invalid input.
3. Write at least 10 agile stories (including description, tasks, test scenarios, and story points) before any software is developed. The team must follow the Scrum process (the Scrum master **must** document all meetings and the product owner must document the backlog).
4. Submit a UML class diagram, at least three use cases, and at least three state diagrams with your project.
5. Submit a test plan.
6. All changes must be persistent between executions.
7. Submit a paragraph for each component discussing the **Big-Oh**.
8. Identify all the data structures used.
9. Each team must use a version control system, graphical user interface tool, automated documentation tool, and an Agile management tool. (GITHUB, DOXYGEN, WAFFIO.IO, graphical user interface using software such as QT, etc.)
10. All artifacts are due December 5th for all teams.

Schedule:

First checkpoint – November 7th – 5 points

Second checkpoint – November 21th – 5 points

Final checkpoint – December 5th – 30 points

The assignment will be graded using the following scale:

