Table of Contents

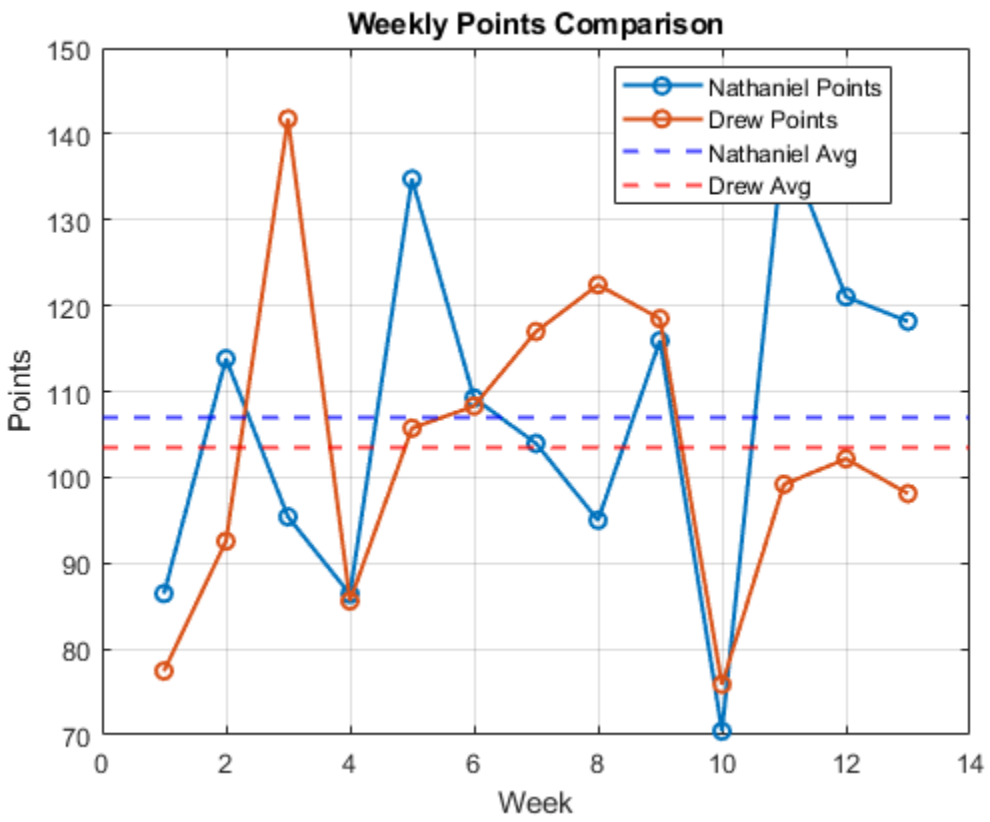

```
clear all;
close all;
clc;

username = "public";
password = "dse511project";

conn = mysql(username,password,'Server',"9QQ7GY3", ...
    'DatabaseName',"team_data",'PortNumber',3306)

tablename = "sleeperdata";
data = sqlread(conn, tablename);

% Display the data
disp(data);



% Close the connection
close(conn);

% Assume `data` is a table fetched from your SQL database
% Example columns: username, points_week_1, points_week_2, ..., age_week_1,
age_week_2

% Extract data for Users 1 and 2
user1_data = data(strcmp(data.username, 'ShepC130'), :);
user2_data = data(strcmp(data.username, 'Drewski98'), :);

% Extract points and ages for all weeks
weeks = 1:(width(data) - 1) / 2; % Assuming half columns are for points and
half for ages
user1_points = table2array(user1_data(:,
contains(data.Properties.VariableNames, 'points_week')));
user2_points = table2array(user2_data(:,
contains(data.Properties.VariableNames, 'points_week')));

user1_ages = table2array(user1_data(:,
contains(data.Properties.VariableNames, 'age_week')));
user2_ages = table2array(user2_data(:,
contains(data.Properties.VariableNames, 'age_week')));

% Calculate averages
avg_user1_points = mean(user1_points, 'omitnan');
```

```
avg_user2_points = mean(user2_points, 'omitnan');

avg_user1_ages = mean(user1_ages, 'omitnan')
avg_user2_ages = mean(user2_ages, 'omitnan')

figure;
plot(weeks, user1_points, '-o', 'LineWidth', 1.5, 'DisplayName', 'Nathaniel
Points');
hold on;
plot(weeks, user2_points, '-o', 'LineWidth', 1.5, 'DisplayName', 'Drew
Points');

% Plot average lines
yline(avg_user1_points, "b--", 'LineWidth', 1.5, 'DisplayName', 'Nathaniel
Avg');
yline(avg_user2_points, 'r--', 'LineWidth', 1.5, 'DisplayName', 'Drew Avg');

% Customize plot
title('Weekly Points Comparison');
xlabel('Week');
ylabel('Points');
legend('Location', 'best');
grid on;
hold off;


conn =

  connection with properties:

                  Database: "team_data"
                  UserName: "public"

  Database Properties:

                AutoCommit: "on"
              LoginTimeout: 0
      MaxDatabaseConnections: 0

  Catalog and Schema Information:

             DefaultCatalog: "team_data"
                   Catalogs: ["information_schema", "mysql",
"performance_schema" ... and 5 more]
                    Schemas: []

  Database and Driver Information:

        DatabaseProductName: "MySQL"
     DatabaseProductVersion: "8.0.40"
                 DriverName: "Mariadb Connector/C"
              DriverVersion: "3.3.5"

       username         points_week_1    points_week_2    points_week_3
```

```
points_week_4    points_week_5    points_week_6    points_week_7
points_week_8    points_week_9    points_week_10    points_week_11
points_week_12    points_week_13    age_week_1    age_week_2
age_week_3    age_week_4    age_week_5    age_week_6    age_week_7
age_week_8    age_week_9    age_week_10    age_week_11    age_week_12
age_week_13
    _________________    _____________    _____________    _____________
_____________    _____________    _____________    _____________
_____________    _____________    _____________    _____________
_____________    _____________    __________    __________
__________    __________    __________    __________    __________
__________    __________    __________    __________    __________
__________

    "AlexFrame59"            130.4           111.12
125.92           134.62           155.88           140.24
115.72           108.42           131.78             122.9
120.98            142.76             149.06           27.12
27.12         27.12         27.12         27.12         27.12
27.12         27.12         27.12         27.12          27.12
27.12          27.12
    "Clayboski"             100.72              159
150.66            126.7           147.36           123.76
120.68           189.08           149.74            189.16
175.2              94.5            131.96          25.036
25.036        25.036        25.036        25.036        25.036
25.036        25.036        25.036        25.036         25.036
25.036         25.036
    "Drewski98"              77.44             92.56
141.76             85.6           105.72            108.3
116.98           122.42           118.48             75.88
99.18            102.16               98.1          24.393
24.393        24.393        24.393        24.393        24.393
24.393        24.393        24.393        24.393         24.393
24.393         24.393
    "Hege"                   63.78             120.8
131.94           116.92            142.2           100.34
107.38           105.82           108.54            128.82
104.22            106.18             132.14          24.357
24.357        24.357        24.357        24.357        24.357
24.357        24.357        24.357        24.357         24.357
24.357         24.357
    "MattiICE23"             119.78             108.8
126.86           108.22           119.02           114.22
113.76           149.88           153.44              99.9
151.74               155             136.16          25.462
25.462        25.462        25.462        25.462        25.462
25.462        25.462        25.462        25.462         25.462
25.462         25.462
    "ShepC130"               86.46            113.82
95.4            86.38            134.76           109.24
103.94                95           115.92             70.44
139.56            121.02             118.16          24.115
24.115        24.115        24.115        24.115        24.115
```

```
24.115        24.115        24.115        24.115        24.115
24.115        24.115
    "TheHumanEgg"            123.6          114.28
110.9           100.5          109.52           151.9
105.88          168.52          152.58           95.02
138.5           142.64            152.2          26.071
26.071        26.071        26.071        26.071        26.071
26.071        26.071        26.071        26.071        26.071
26.071        26.071
    "Willythicc"           132.56           120.4
164.78           134.4          118.3          181.36
133.36          140.44          143.14           93.54
110.44            154.7          155.78          27.923
27.923        27.923        27.923        27.923        27.923
27.923        27.923        27.923        27.923        27.923
27.923        27.923
    "andrewi5"             128.42          168.52
119.26          142.96          118.66          151.48
126.16          164.08          127.82           151.72
138.28           117.38           105.02           26.64
26.64         26.64         26.64         26.64         26.64
26.64         26.64         26.64         26.64         26.64
26.64         26.64
    "bheck80"              129.64          137.16
100.58           130.5          108.6            77.58
129.72          145.96          110.18           123.86
143.16            111.1          125.54          24.929
24.929        24.929        24.929        24.929        24.929
24.929        24.929        24.929        24.929        24.929
24.929        24.929
    "garrettrsimpson"      106.68           98.22
127          122.12          146.94           83.16
114.22           159.6          139.66           100.56
152.52           128.22           118.92          27.071
27.071        27.071        27.071        27.071        27.071
27.071        27.071        27.071        27.071        27.071
27.071        27.071
    "jwoods329"             150.8           82.98
122.62          155.14          126.84          121.42
71.88          137.64          110.2            87.84
91.14           110.16          170.34          26.222
26.222        26.222        26.222        26.222        26.222
26.222        26.222        26.222        26.222        26.222
26.222        26.222


avg_user1_ages =

   24.1154


avg_user2_ages =
```

```
24.3929
```



Predicting Week 14 Scores

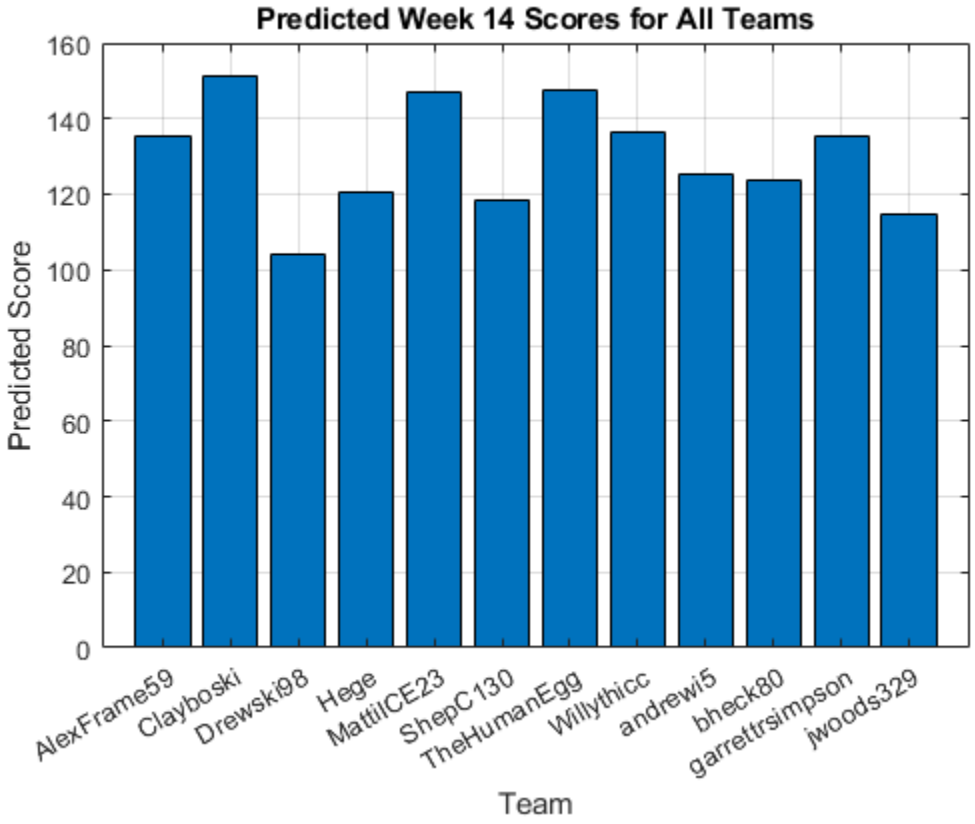
Extract team names and points columns

```
teams = unique(data.username);  % Extract unique team names
num_teams = numel(teams);

% Initialize storage for results
predicted_scores = table(teams, zeros(num_teams, 1), 'VariableNames',
{'Team', 'Predicted_Week_14_Score'});

weeks = (1:13)';  % Weeks 1 to 13 (independent variable)

for i = 1:num_teams
    % Filter data for the current team
    team_name = teams{i};
    team_data = data(strcmp(data.username, team_name), :);

    % Extract weekly points for weeks 1 to 13
    team_points = table2array(team_data(:,
contains(data.Properties.VariableNames, 'points_week_1':'points_week_13')));

    % Train linear regression model
```

```
    model = fitlm(weeks, team_points, 'linear');

    % Predict Week 14 score
    predicted_week14 = predict(model, 14);
    predicted_scores.Predicted_Week_14_Score(i) = predicted_week14;

    % Display results for this team
    fprintf('Predicted Week 14 Score for %s: %.2f\n', team_name,
predicted_week14);
end

% Display predicted scores table
disp(predicted_scores);

% Save predictions to a CSV file
writetable(predicted_scores, 'Predicted_Week_14_Scores.csv');

figure;
bar(categorical(predicted_scores.Team),
predicted_scores.Predicted_Week_14_Score);
title('Predicted Week 14 Scores for All Teams');
xlabel('Team');
ylabel('Predicted Score');
grid on;
```

```
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for AlexFrame59: 135.19
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for Clayboski: 151.45
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for Drewski98: 103.90
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for Hege: 120.70
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for MattiICE23: 147.00
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for ShepC130: 118.59
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for TheHumanEgg: 147.78
Warning: Colon operands must be real scalars. This warning will become an
```

```
error
in a future release.
Predicted Week 14 Score for Willythicc: 136.39
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for andrewi5: 125.26
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for bheck80: 123.62
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for garrettrsimpson: 135.32
Warning: Colon operands must be real scalars. This warning will become an
error
in a future release.
Predicted Week 14 Score for jwoods329: 114.86
          Team           Predicted_Week_14_Score
    _________________    _______________________

    "AlexFrame59"               135.19
    "Clayboski"                 151.45
    "Drewski98"                  103.9
    "Hege"                       120.7
    "MattiICE23"                   147
    "ShepC130"                  118.59
    "TheHumanEgg"               147.78
    "Willythicc"                136.39
    "andrewi5"                  125.26
    "bheck80"                   123.62
    "garrettrsimpson"           135.32
    "jwoods329"                 114.86
```



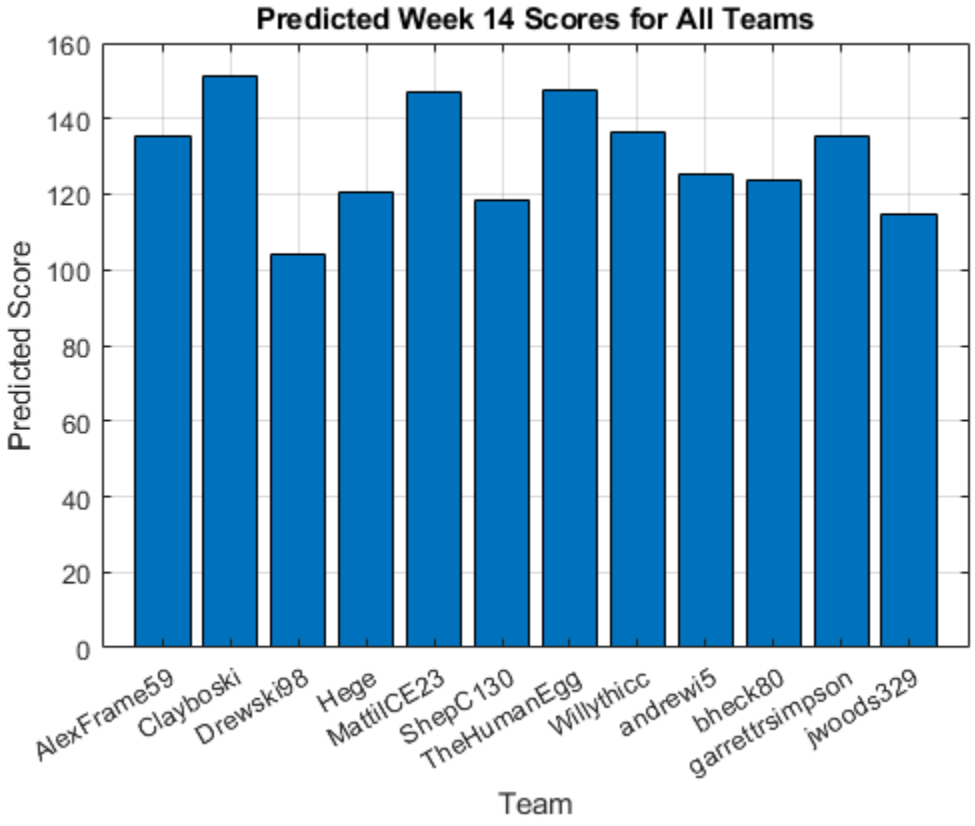
Comparing Drewski and ShepC130 (me) to prove that my team is better than his.

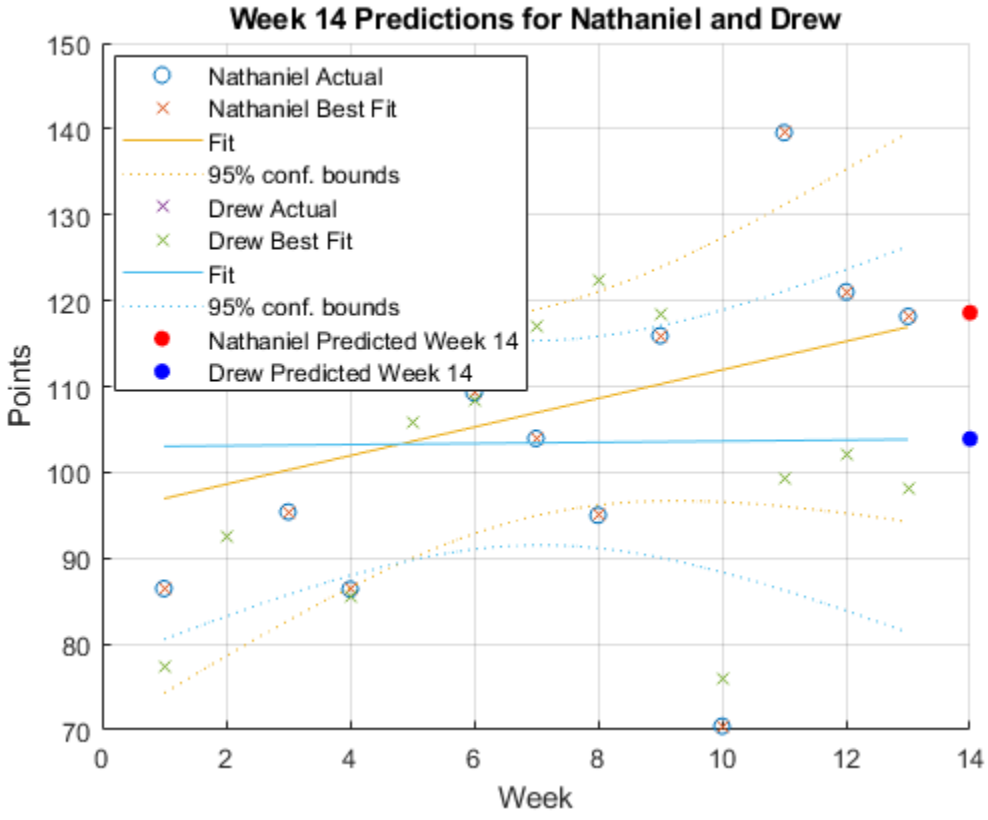
Filter data for User 1 and User 2

```
user1_data = data(strcmp(data.username, 'ShepC130'), :);
user2_data = data(strcmp(data.username, 'Drewski98'), :);

% Extract weekly points for both users (Weeks 1 to 13)
weeks = 1:(width(data) - 1) / 2; % Assuming half columns are for points and
half for ages
user1_points = table2array(user1_data(:,
contains(data.Properties.VariableNames, 'points_week')));
user2_points = table2array(user2_data(:,
contains(data.Properties.VariableNames, 'points_week')));


% Train regression models for both users
model_user1 = fitlm(weeks, user1_points, 'linear');
model_user2 = fitlm(weeks, user2_points, 'linear');

% Predict Week 14 scores
predicted_week14_user1 = predict(model_user1, 14);
predicted_week14_user2 = predict(model_user2, 14);
```

```
% Display predictions
fprintf('Predicted Week 14 Score for Nathaniel: %.2f\n',
predicted_week14_user1);
fprintf('Predicted Week 14 Score for Drew: %.2f\n', predicted_week14_user2);

figure;

% Scatter plot for User 1
scatter(weeks, user1_points, 'o', 'DisplayName', 'Nathaniel Actual');
hold on;

% Line of best fit for User 1
plot(model_user1, 'DisplayName', 'Nathaniel Best Fit');

% Scatter plot for User 2
scatter(weeks, user2_points, 'x', 'DisplayName', 'Drew Actual');

% Line of best fit for User 2
plot(model_user2, 'DisplayName', 'Drew Best Fit');

% Highlight Week 14 predictions
scatter(14, predicted_week14_user1, 'r', 'filled', 'DisplayName', 'Nathaniel
Predicted Week 14');
scatter(14, predicted_week14_user2, 'b', 'filled', 'DisplayName', 'Drew
Predicted Week 14');

% Customize plot
title('Week 14 Predictions for Nathaniel and Drew');
xlabel('Week');
ylabel('Points');
legend('Location', 'best');
grid on;
hold off;
```

```
Predicted Week 14 Score for Nathaniel: 118.59
Predicted Week 14 Score for Drew: 103.90
```


Predicted Week 14 Scores for All Teams
Predicted Score
160
140
120
100
80
60
40
20
0
AlexFrame59
Clayboski
Drewski98
Hege
MattiICE23
ShepC130
TheHumanEgg
Willythicc
andrewi5
bheck80
garrettrsimpson
jwoods329
Team


Week 14 Predictions for Nathaniel and Drew
Nathaniel Actual
Nathaniel Best Fit
Fit
95% conf. bounds
Drew Actual
Drew Best Fit
Fit
95% conf. bounds
Nathaniel Predicted Week 14
Drew Predicted Week 14
Points
150
140
130
120
110
100
90
80
70
0
2
4
6
8
10
12
14
Week

Overall League Predictions

Extract unique teams and weeks

```
teams = unique(data.username); % Extract unique team names
num_teams = numel(teams);
weeks = 1:(width(data) - 1) / 2; % Assuming half columns are for points and
half for ages

% Initialize storage for predictions and colors
predicted_week14 = zeros(num_teams, 1);
colors = lines(num_teams); % Generate distinct colors for each team

% Create a figure for plotting
figure;
hold on;

% Initialize an array to collect legend handles
legend_handles = [];

% Loop through each team and perform regression
for i = 1:num_teams
    % Filter data for the current team
    team_name = teams{i};
    team_data = data(strcmp(data.username, team_name), :);

    % Extract weekly points for Weeks 1 to 13
    team_points = table2array(team_data(:,
contains(data.Properties.VariableNames, 'points_week')));

    % Train linear regression model
    model = fitlm(weeks, team_points, 'linear');

    % Predict Week 14 score
    predicted_week14(i) = predict(model, 14);

    % Scatter plot for the team's actual scores
    scatter_handle = scatter(weeks, team_points, 'MarkerEdgeColor',
colors(i, :), ...
        'DisplayName', sprintf('%s', team_name));

    % Store the scatter handle for the legend
    legend_handles = [legend_handles, scatter_handle];

    % Line of best fit for the team (no legend entry)
    plot(model, 'Color', colors(i, :), 'DisplayName', '',
'HandleVisibility', 'off');
end

% Highlight Week 14 predictions with matching colors
for i = 1:num_teams
    scatter(14, predicted_week14(i), 'filled', ...
        'MarkerEdgeColor', colors(i, :), ...
```

```
        'MarkerFaceColor', colors(i, :), ...
        'HandleVisibility', 'off'); % No additional legend entry
end

% Add a legend for the teams only
legend(legend_handles, 'Location', 'bestoutside'); % Use only the collected
scatter handles

% Customize plot
title('Week 14 Predictions for All Teams');
xlabel('Week');
ylabel('Points');
grid on;
hold off;

% Display predicted Week 14 scores
for i = 1:num_teams
    fprintf('Predicted Week 14 Score for %s: %.2f\n', teams{i},
predicted_week14(i));
end
```

```
Predicted Week 14 Score for AlexFrame59: 135.19
Predicted Week 14 Score for Clayboski: 151.45
Predicted Week 14 Score for Drewski98: 103.90
Predicted Week 14 Score for Hege: 120.70
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```
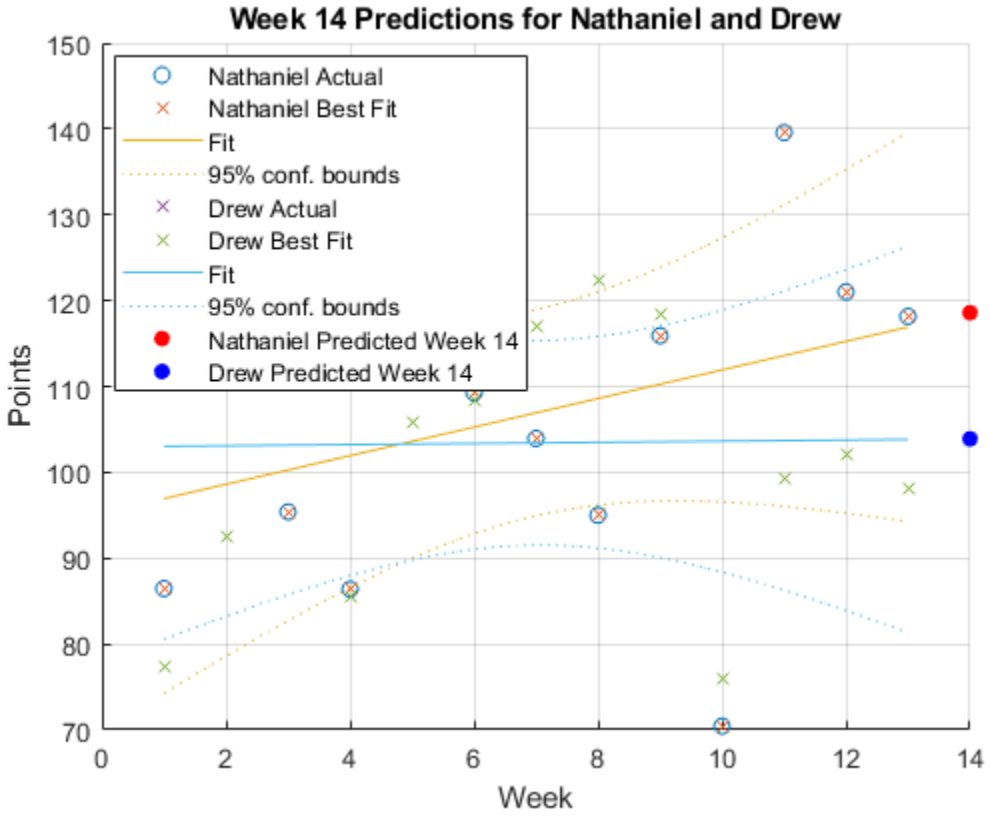
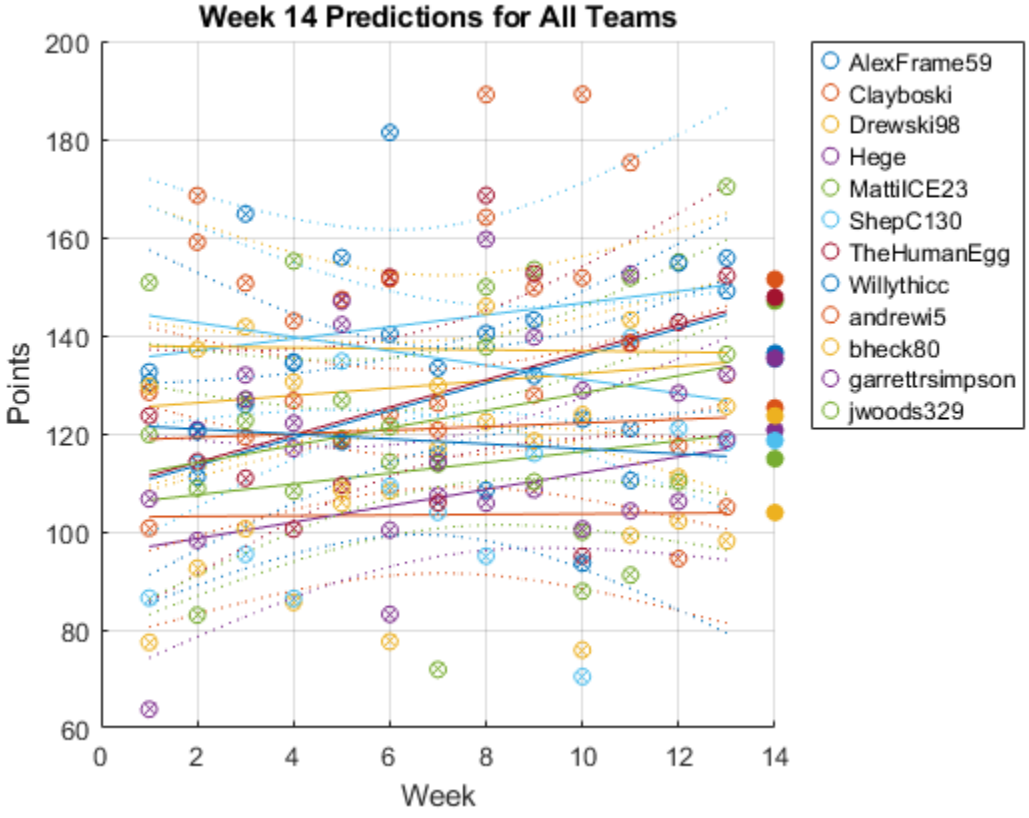


Week 14 Predictions for Nathaniel and Drew
Nathaniel Actual
Nathaniel Best Fit
Fit
95% conf. bounds
Drew Actual
Drew Best Fit
Fit
95% conf. bounds
Nathaniel Predicted Week 14
Drew Predicted Week 14
Points
Week
150
140
130
120
110
100
90
80
70
0
2
4
6
8
10
12
14


Week 14 Predictions for All Teams
AlexFrame59
Clayboski
Drewski98
Hege
MattiICE23
ShepC130
TheHumanEgg
Willythicc
andrewi5
bheck80
garrettrsimpson
jwoods329
Points
Week
200
180
160
140
120
100
80
60
0
2
4
6
8
10
12
14

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