

Predicting Quarterback Fantasy Score

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Abstract

Hype.

1 Introduction

Fantasy sports are a big business. Generating nearly 7 billion dollars annually (cite) and with approximately 60 million players in the US/Canada (cite), fantasy sports – particularly football – have become as big as the sports that they mimic. Players can compete head to head in leagues across a wide range of providers (Yahoo, CBS, ESPN, DraftKings, DraftStreet etc) – each with their own rulesets and stakes. Some are just friendly leagues set up between friends or coworkers, no real stakes other than bragging rights, others have significant monetary rewards for those that can get to the top of the leaderboard.

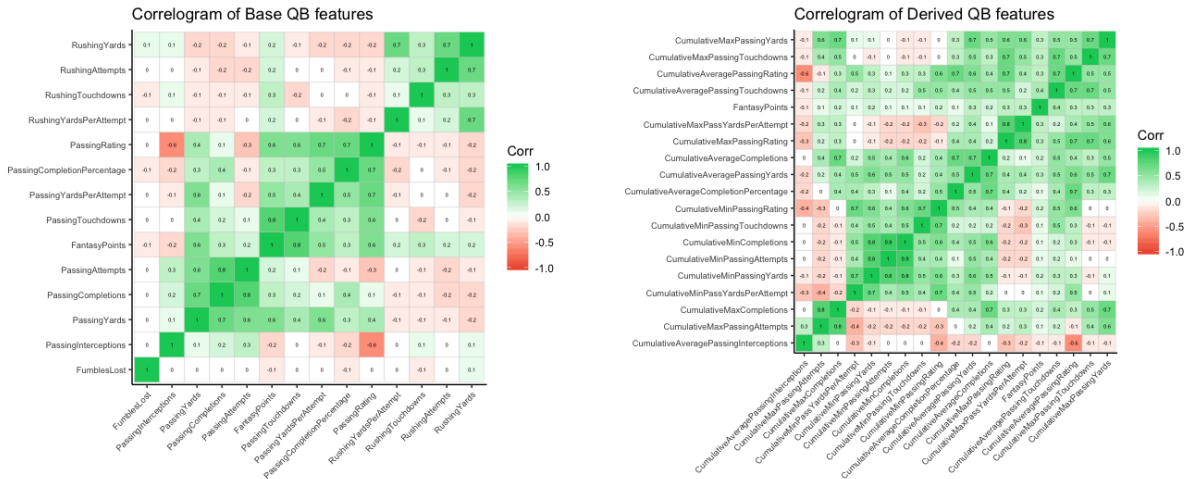
The explosion of weekly leagues over the course of the last few years has seen an already huge business get even larger. In the weekly cash leagues – each player is given a budget and drafts a completely new team every week. Each draft site uses a predictive model to set player salaries based on the number of points the model predicts that player to score. Budget constraints make it impossible to simply select the players that are predicted to score the most points – hence having a predictive model for which players will generate the best return on investment would be a huge advantage. In the following analysis we will attempt to build position specific models that can accurately predict the number of points a given NFL player is likely to score in a given week.

2 Data Description

The **fantasydata.com** is leading sports data company, providing real-time post games feeds across all major sports to both fantasy and other companies. For this exercise NFL data was retrived through API calls for predicting quarterback's performance in next match by estimating fantasypoints. For model building 17 weeks of data was obtained for around 56 players for season 2017. This dataset contains 453 quarterabck's observations from 17 matches and 512 observations of opponent's team. This observations contains 13 explanatory variables for quarterback and 18 derived from defensive statistics i.e. from opponent team. For the first analysis in this paper, we have focused on predictin Fantasypoints in the next match based on data available till current game. Since this is weekly data for individual player, The second analysis expands this anlalys to building time series model to forecast performance in next matches. More information on the details can be found in the analyses that follow.

3 Exploratory Analysis

Data was retrieved from real-time post games feed made available by fantasydata website. Quarterback with 453 observations for about 56 players and Defensive statistics with 512 observations was analyzed for missing information. Data appeared to be clean. Section 6 of appendix I shows data is clean, there no missing values as well and therefore no data cleaning operation is required. This dataset contains statistics of weekly performance, All possible variables were examined during exploratory analysis and variables which found to have influence on fantasyPoints (Target Variable) were selected. Thirteen base predictors were found with linear relationship with fantasypoints and 18 are derived from defensive statistics. Scatterplots of base and derived predictors have been added in section 9 of the appendix. Here is the Corrologram for base and derived predictors.



4 Objective One

4.1 Model Selection

4.1.1 Type of Selection

Of the tools made available to us in the course, we believe that LASSO estimation is the best option available to us. Subset selection discretely adds and removes variables, leaving far too much room for overfitting. While ridge regression is a great shrinkage method for many scenarios, we believe that it is at least slightly desirable for the coefficients of truly unnecessary variables to actually be zero so that some true form of variable selection is occurring. We are implicitly saying that a small set of variables are necessary to predict fantasy scores, but the nature of football, the size of our dataset, and the disproportionate amount of points that goes to touchdowns indicates that this assumptions may very well be appropriate.

4.1.2 Assumption-Checking

The LASSO model is a linear model and thus assumes that there is a linear relationship between the response and the parameters. Furthermore, it is also important that the variance of the residuals is constant across the predictors in order for our model to adequately capture the variation in the response. Because we are not interested in quantifying our uncertainty, we don't make any assumptions about the distribution of the

residuals.

Fit diagnostics are given in the set of plots represented in below plot.

4.1.2.1 Residual Plots An examination of the residual plots fitted data shows a more randomized pattern for both the regular and studentized residuals. The residual Q-Q plot shows a nice linear trend, and the residual histogram is very nearly normally distributed.

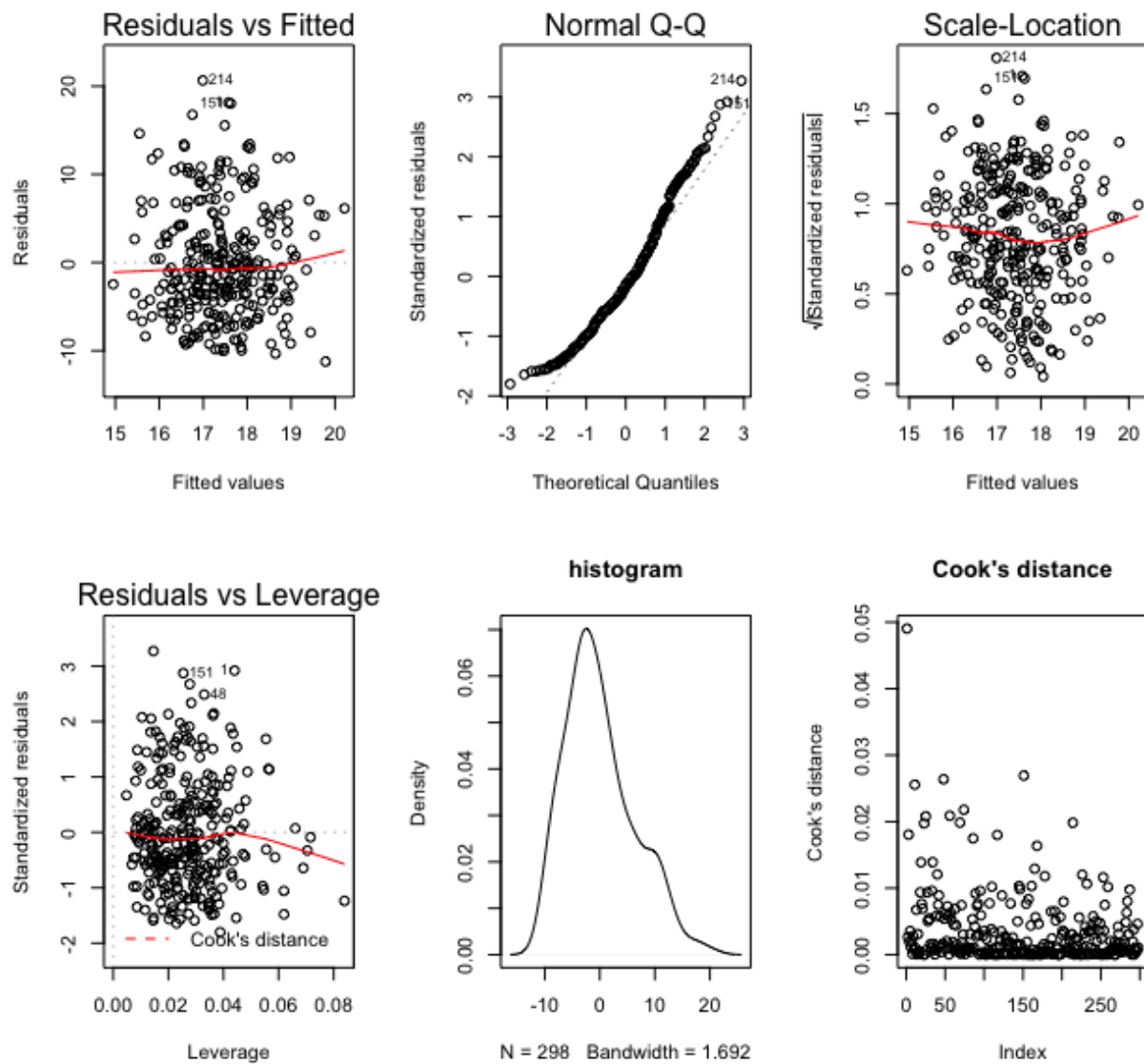
4.1.2.2 Influential point analysis only one observation stood out immediately on the Cook's D plot, so it is necessary to examine this outlier and see what is going on. Upon further inspection, the data point appears to be valid, so there is no good reason to exclude it from the analysis, and we can proceed with caution.

4.1.2.3 Linearity the FantasyPoints by 13 predictors do appear to be linear, as per scatterplots in section 9 of the appendix.

4.1.2.4 Normality As shown in the QQ plot. Residuals are normally distributed, it means FantasyPoints do appear to be linear with defensive variables AvgPassDefense and cumulative sum variables derived from defensive statistics.

4.1.2.5 Independence for Multiple linear regression, model is used to predict performance of quarterback in the next game based on today's performance taking into consideration oppoent't performance befor playing against them. so data is assumed to be independence.

4.1.2.6 Constant Variance Residual vs fitted plot shows random cloud which indicates there is constant variance.



5 Objective Two

Appendix-I

Exploratory Data Analysis

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Oct 5, 2019

#1 : Load required libraries

#2 : Load Quarterback Crosssectional data

```
load("../analysis/data/.RData")
QBCrossSectional = getFootballData(URL) %>% filterUnwantedVariables() %>% filter(Position == 'QB')
summary(QBCrossSectional)
```

```
##      PlayerID      Name      Week      Position
## Min.   : 611   Length:453   Min.   : 1.000   Length:453
## 1st Qu.: 7242   Class :character 1st Qu.: 5.000   Class :character
## Median :13723   Mode  :character Median : 9.000   Mode  :character
## Mean   :11932                      Mean   : 9.049
## 3rd Qu.:16763                      3rd Qu.:13.000
## Max.   :19029                      Max.   :17.000
##      Opponent      TeamIsHome      GameDate      PassingCompletions
## Length:453         Mode :logical   Length:453      Min.   : 5.00
## Class :character   FALSE:226     Class :character 1st Qu.:18.00
## Mode  :character   TRUE :227     Mode  :character Median :21.00
##                                     Mean   :21.24
##                                     3rd Qu.:25.00
##                                     Max.   :44.00
##      Result      PassingAttempts PassingCompletionPercentage
## Length:453      Min.   :10.00   Min.   :38.70
## Class :character 1st Qu.:29.00   1st Qu.:57.10
## Mode  :character Median :33.00   Median :63.20
##                                     Mean   :33.62   Mean   :63.48
##                                     3rd Qu.:38.00   3rd Qu.:69.40
##                                     Max.   :66.00   Max.   :87.00
##      PassingYards      PassingYardsPerAttempt      PassingTouchdowns
## Min.   : 57.0   Min.   : 3.100   Min.   :0.000
## 1st Qu.:199.0   1st Qu.: 6.200   1st Qu.:1.000
## Median :241.0   Median : 7.200   Median :1.000
## Mean   :244.6   Mean   : 7.378   Mean   :1.587
## 3rd Qu.:291.0   3rd Qu.: 8.400   3rd Qu.:2.000
## Max.   :506.0   Max.   :14.100   Max.   :5.000
##      PassingInterceptions      PassingRating      RushingAttempts      RushingYards
## Min.   :0.00   Min.   : 31.14   Min.   : 0.000   Min.   : -8.00
## 1st Qu.:0.00   1st Qu.: 77.92   1st Qu.: 1.000   1st Qu.: 0.00
## Median :0.00   Median : 92.94   Median : 3.000   Median : 8.00
## Mean   :0.66   Mean   : 93.88   Mean   : 3.185   Mean   :14.38
## 3rd Qu.:1.00   3rd Qu.:109.84   3rd Qu.: 5.000   3rd Qu.:23.00
## Max.   :4.00   Max.   :150.69   Max.   :14.000   Max.   :95.00
##      RushingYardsPerAttempt      RushingTouchdowns      FumblesLost      FantasyPoints
## Min.   : -2.700   Min.   :0.0000   Min.   :0.0000   Min.   : 7.12
## 1st Qu.: 0.000   1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:11.86
```

```
## Median : 3.000      Median :0.0000      Median :0.0000      Median :15.86
## Mean   : 3.839      Mean    :0.1457      Mean    :0.1766      Mean    :16.89
## 3rd Qu.: 6.000      3rd Qu.:0.0000      3rd Qu.:0.0000      3rd Qu.:20.68
## Max.   :70.000      Max.    :2.0000      Max.    :3.0000      Max.    :37.64
##      Team
## Length:453
## Class :character
## Mode  :character
##
##
##
```

```
attach(QBCrossSectional)
```

```
## The following object is masked from package:ggplot2:
```

```
##
```

```
##      Position
```

```
Drop rushing yards per attempt
```

```
#3 : Defensive stats
```

```
## 3.1 : Team Defensive Stats
```

```
team_defense = getFootballData("https://fantasydata.com/FantasyStatsNFL/FantasyStats_Read?sort=FantasyP
team_defense$StatSummary = c(NULL)
```

```
defensive_columns = c('Team', 'Week', 'TacklesForLoss', 'Sacks', 'QuarterbackHits', 'Interceptions', 'F
```

```
team_defense = team_defense %>% dplyr::select(defensive_columns) %>% rename('DefensiveFantasyPoints'='F
```

```
attach(team_defense)
```

```
## The following objects are masked from QBCrossSectional:
```

```
##
```

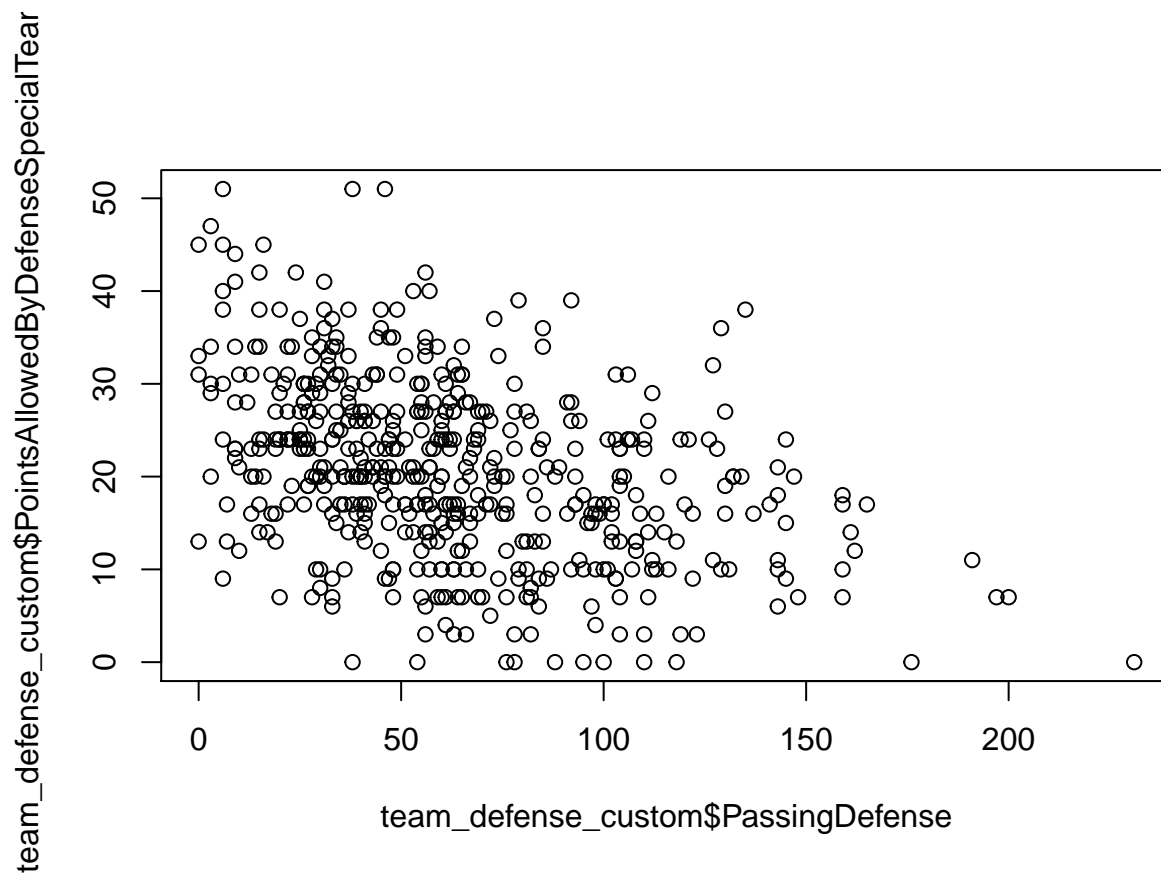
```
##      Team, Week
```

```
## 3.5 : Add defensive matchups
```

```
#This only adds the current weeks matchup - we need next week's matchup as a target
```

```
team_defense_custom = sqldf("SELECT Team
                             ,Week
                             ,(Sacks * 4
                             +QuarterbackHits * 3
                             +Interceptions * 7
                             +SackYards * 2) as PassingDefense
                             ,PointsAllowedByDefenseSpecialTeams
                             FROM team_defense")
#scheme: weight interceptions, qbsacks, quarterbackhits, passesdefended
```

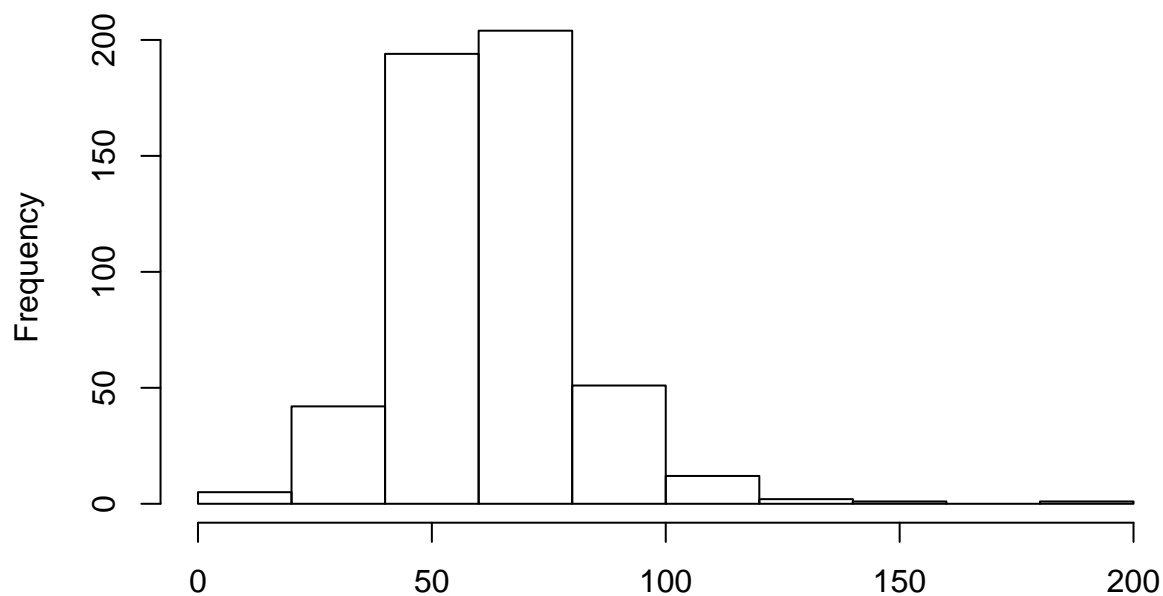
```
plot(team_defense_custom$PassingDefense, team_defense_custom$PointsAllowedByDefenseSpecialTeams)
```



```
team_defensive_rankings = team_defense_custom %>%
  #filter(Week > 1 & Week < 17)
  group_by(Team) %>%
  arrange(Week) %>%
  mutate(
    AvgPassDefense = cumsum(PassingDefense)/Week #Account for bye week....
  )
QBCrossSectional$Week = as.numeric(QBCrossSectional$Week)

hist(team_defensive_rankings$AvgPassDefense)
```

Histogram of team_defensive_rankings\$AvgPassDefense



team_defensive_rankings\$AvgPassDefense

```
sqldf("SELECT * FROM team_defensive_rankings WHERE Team = 'LAC'")
```

##	Team	Week	PassingDefense	PointsAllowedByDefenseSpecialTeams
## 1	LAC	1	126	24
## 2	LAC	2	27	19
## 3	LAC	3	101	24
## 4	LAC	4	29	26
## 5	LAC	5	132	20
## 6	LAC	6	33	16
## 7	LAC	7	95	0
## 8	LAC	8	59	19
## 9	LAC	10	76	20
## 10	LAC	11	62	24
## 11	LAC	12	56	6
## 12	LAC	13	63	10
## 13	LAC	14	60	7
## 14	LAC	15	26	30
## 15	LAC	16	76	7
## 16	LAC	17	54	10
##	AvgPassDefense			
## 1			126.00000	
## 2			76.50000	
## 3			84.66667	
## 4			70.75000	
## 5			83.00000	
## 6			74.66667	
## 7			77.57143	
## 8			75.25000	
## 9			67.80000	
## 10			67.27273	


```

## 11      66.33333
## 12      66.07692
## 13      65.64286
## 14      63.00000
## 15      63.81250
## 16      63.23529

## 3.6 : Add some lag data for QB

### CumulativeVariables (these should definitely be combined into a weekly ranking)
QBCrossSectionalCumulativePassYards = QBCrossSectional %>% group_by(PlayerID)%>% filter(n() >= 8) %>% a
  mutate(CumulativeAveragePassingYards=cummean(PassingYards)
    , CumulativeAveragePassingTouchdowns=cummean(PassingTouchdowns)
    , CumulativeAveragePassingInterceptions=cummean(PassingInterceptions)
    , CumulativeAveragePassingRating=cummean(PassingRating)
    , CumulativeAverageCompletions = cummean(PassingCompletions) # not sure that completions matter
    , CumulativeAverageCompletionPercentage = cummean(PassingCompletionPercentage)
    , CumulativeMaxPassingTouchdowns = cummax(PassingTouchdowns)
    , CumulativeMaxPassingYards = cummax(PassingYards)
    , CumulativeMaxPassingAttempts = cummax(PassingAttempts)
    , CumulativeMaxPassingRating = cummax(PassingRating)
    , CumulativeMaxCompletions = cummax(PassingCompletions)
    , CumulativeMaxPassYardsPerAttempt = cummax(PassingYardsPerAttempt)
    , CumulativeMinPassingTouchdowns = cummin(PassingTouchdowns)
    , CumulativeMinPassingYards = cummin(PassingYards) #Let's get mins to capture downside risk
    , CumulativeMinPassingAttempts = cummin(PassingAttempts)
    , CumulativeMinPassingRating = cummin(PassingRating)
    , CumulativeMinCompletions = cummin(PassingCompletions)
    , CumulativeMinPassYardsPerAttempt = cummin(PassingYardsPerAttempt)
    , NextWeekFantasyPoints = lead(FantasyPoints) #Target Variable
    , NextOpponent = lead(Opponent)
    #, NextWeekDefensiveMatchup = lag(WeeklyRank) #Has to be last week's team ranking - not this we
  )

QBCrossSectionalDefensiveOverlayCumulativePassYards = QBCrossSectionalCumulativePassYards %>% left_join

#QBCrossSectionalDefensiveOverlayCumulativePassYards %>% filter(PlayerID == 6739) %>% write.csv('alex_s
attach(QBCrossSectionalDefensiveOverlayCumulativePassYards)

## The following objects are masked from team_defense:
##
##   PointsAllowedByDefenseSpecialTeams, Team, Week

## The following objects are masked from QBCrossSectional:
##
##   FantasyPoints, FumblesLost, GameDate, Name, Opponent,
##   PassingAttempts, PassingCompletionPercentage,
##   PassingCompletions, PassingInterceptions, PassingRating,
##   PassingTouchdowns, PassingYards, PassingYardsPerAttempt,
##   PlayerID, Position, Result, RushingAttempts,
##   RushingTouchdowns, RushingYards, RushingYardsPerAttempt, Team,
##   TeamIsHome, Week

## The following object is masked from package:ggplot2:

```

##

Position

summary(QBCrossSectionalDefensiveOverlayCumulativePassYards)

```
##      PlayerID      Name      Week      Position
## Min.   : 611   Length:368   Min.   : 1.000   Length:368
## 1st Qu.: 6739  Class :character 1st Qu.: 4.000   Class :character
## Median :13320  Mode  :character Median : 9.000   Mode  :character
## Mean   :11765                      Mean   : 8.924
## 3rd Qu.:16763                      3rd Qu.:13.000
## Max.   :18868                      Max.   :17.000
##
##      Opponent      TeamIsHome      GameDate      PassingCompletions
## Length:368        Mode :logical   Length:368      Min.   : 6.00
## Class :character  FALSE:184        Class :character 1st Qu.:18.00
## Mode  :character  TRUE :184        Mode  :character Median :21.00
##                                     Mean   :21.39
##                                     3rd Qu.:25.00
##                                     Max.   :44.00
##
##      Result      PassingAttempts PassingCompletionPercentage
## Length:368      Min.   :10.00    Min.   :39.30
## Class :character 1st Qu.:29.00    1st Qu.:57.40
## Mode  :character Median :33.00    Median :63.75
##                                     Mean   :33.56    Mean   :63.99
##                                     3rd Qu.:38.00    3rd Qu.:70.00
##                                     Max.   :66.00    Max.   :87.00
##
##      PassingYards PassingYardsPerAttempt PassingTouchdowns
## Min.   : 69.0     Min.   : 3.100     Min.   :0.000
## 1st Qu.:202.8     1st Qu.: 6.300     1st Qu.:1.000
## Median :242.0     Median : 7.300     Median :1.500
## Mean   :246.8     Mean   : 7.442     Mean   :1.617
## 3rd Qu.:292.2     3rd Qu.: 8.400     3rd Qu.:2.000
## Max.   :506.0     Max.   :14.100     Max.   :5.000
##
##      PassingInterceptions PassingRating      RushingAttempts      RushingYards
## Min.   :0.0000          Min.   : 31.14   Min.   : 0.000   Min.   : -8.00
## 1st Qu.:0.0000          1st Qu.: 79.29   1st Qu.: 1.000   1st Qu.:  0.00
## Median :0.0000          Median : 94.94   Median : 3.000   Median :  8.00
## Mean   :0.6114          Mean   : 95.45   Mean   : 3.258   Mean   :14.55
## 3rd Qu.:1.0000          3rd Qu.:110.83   3rd Qu.: 5.000   3rd Qu.:24.00
## Max.   :4.0000          Max.   :150.69   Max.   :14.000   Max.   :95.00
##
##      RushingYardsPerAttempt RushingTouchdowns FumblesLost      FantasyPoints
## Min.   : -2.700          Min.   :0.0000    Min.   :0.0000    Min.   : 7.32
## 1st Qu.:  0.000          1st Qu.:0.0000    1st Qu.:0.0000    1st Qu.:12.61
## Median :  3.000          Median :0.0000    Median :0.0000    Median :16.16
## Mean   :  3.818          Mean   :0.1495    Mean   :0.1793    Mean   :17.22
## 3rd Qu.:  6.050          3rd Qu.:0.0000    3rd Qu.:0.0000    3rd Qu.:20.70
## Max.   :70.000          Max.   :2.0000    Max.   :3.0000    Max.   :37.64
##
##      Team      CumulativeAveragePassingYards
## Length:368     Min.   :120.5
```

```

## Class :character    1st Qu.:221.9
## Mode  :character    Median :247.8
##                               Mean  :246.6
##                               3rd Qu.:271.5
##                               Max.   :369.0
##
## CumulativeAveragePassingTouchdowns CumulativeAveragePassingInterceptions
## Min.      :0.000                      Min.      :0.0000
## 1st Qu.:1.250                      1st Qu.:0.4125
## Median :1.667                      Median :0.5714
## Mean    :1.584                      Mean    :0.5933
## 3rd Qu.:2.000                      3rd Qu.:0.7500
## Max.    :4.000                      Max.    :2.0000
##
## CumulativeAveragePassingRating CumulativeAverageCompletions
## Min.      : 56.25                     Min.      :10.00
## 1st Qu.: 87.77                     1st Qu.:19.56
## Median : 97.01                     Median :21.85
## Mean    : 95.86                     Mean     :21.43
## 3rd Qu.:102.53                     3rd Qu.:23.13
## Max.    :148.57                     Max.     :29.00
##
## CumulativeAverageCompletionPercentage CumulativeMaxPassingTouchdowns
## Min.      :44.40                     Min.      :0.00
## 1st Qu.:61.60                      1st Qu.:2.00
## Median :64.13                      Median :3.00
## Mean    :64.42                      Mean     :2.91
## 3rd Qu.:67.37                      3rd Qu.:4.00
## Max.    :80.00                      Max.     :5.00
##
## CumulativeMaxPassingYards CumulativeMaxPassingAttempts
## Min.      :125.0                     Min.      :21.00
## 1st Qu.:288.0                      1st Qu.:39.00
## Median :332.0                      Median :44.00
## Mean    :331.3                     Mean     :43.31
## 3rd Qu.:368.0                      3rd Qu.:49.00
## Max.    :506.0                     Max.     :66.00
##
## CumulativeMaxPassingRating CumulativeMaxCompletions
## Min.      : 56.25                     Min.      :11.00
## 1st Qu.:110.80                     1st Qu.:25.00
## Median :125.96                     Median :28.00
## Mean    :123.69                     Mean     :27.42
## 3rd Qu.:141.79                     3rd Qu.:30.00
## Max.    :150.69                     Max.     :44.00
##
## CumulativeMaxPassYardsPerAttempt CumulativeMinPassingTouchdowns
## Min.      : 4.800                     Min.      :0.0000
## 1st Qu.: 8.500                      1st Qu.:0.0000
## Median :10.500                     Median :0.0000
## Mean    : 9.859                     Mean     :0.4647
## 3rd Qu.:10.900                     3rd Qu.:1.0000
## Max.    :14.100                     Max.     :4.0000
##

```

```
## CumulativeMinPassingYards CumulativeMinPassingAttempts
## Min. : 69.0 Min. :10.00
## 1st Qu.:128.0 1st Qu.:21.00
## Median :158.0 Median :24.00
## Mean :168.1 Mean :24.13
## 3rd Qu.:204.0 3rd Qu.:27.00
## Max. :369.0 Max. :41.00
##
## CumulativeMinPassingRating CumulativeMinCompletions
## Min. : 31.14 Min. : 6.00
## 1st Qu.: 59.66 1st Qu.:12.00
## Median : 68.58 Median :14.00
## Mean : 69.27 Mean :14.91
## 3rd Qu.: 77.92 3rd Qu.:17.00
## Max. :148.57 Max. :29.00
##
## CumulativeMinPassYardsPerAttempt NextWeekFantasyPoints NextOpponent
## Min. : 3.100 Min. : 7.32 Length:368
## 1st Qu.: 4.800 1st Qu.:12.79 Class :character
## Median : 5.800 Median :16.23 Mode :character
## Mean : 5.704 Mean :17.33
## 3rd Qu.: 6.200 3rd Qu.:20.91
## Max. :11.200 Max. :37.64
## NA's :28
## PassingDefense PointsAllowedByDefenseSpecialTeams AvgPassDefense
## Min. : 0.00 Min. : 0.00 Min. : 13.00
## 1st Qu.: 30.00 1st Qu.:16.00 1st Qu.: 46.22
## Median : 54.00 Median :21.00 Median : 60.17
## Mean : 56.76 Mean :21.48 Mean : 59.85
## 3rd Qu.: 76.00 3rd Qu.:27.00 3rd Qu.: 69.40
## Max. :200.00 Max. :51.00 Max. :200.00
## NA's :51 NA's :51 NA's :51
```

3.7 : Create indepenent structure for EDA from QBCrossSectional Data

```
eda_base <- QBCrossSectional %>% group_by(Week) %>%
  select(Week,
         FantasyPoints,
         PassingCompletions,
         PassingAttempts,
         PassingCompletionPercentage,
         PassingYards,
         PassingYardsPerAttempt,
         PassingTouchdowns,
         PassingInterceptions,
         PassingRating,
         RushingAttempts,
         RushingYards,
         RushingYardsPerAttempt,
         RushingTouchdowns,
         FumblesLost
        )

eda_base$Week <- as.factor(eda_base$Week)
```

```
## 3.8 : Create indepenent structure for derived features for EDA
      from QBCrossSectionalDefensiveOverlayCumulativePassYards Data
eda_derived <- QBCrossSectionalDefensiveOverlayCumulativePassYards %>% group_by(Week)%>%
  select(Week,
         FantasyPoints,
         CumulativeAveragePassingYards,
         CumulativeAveragePassingTouchdowns,
         CumulativeAveragePassingInterceptions,
         CumulativeAveragePassingRating,
         CumulativeAverageCompletions,
         CumulativeAverageCompletionPercentage,
         CumulativeMaxPassingTouchdowns,
         CumulativeMaxPassingYards,
         CumulativeMaxPassingAttempts,
         CumulativeMaxPassingRating,
         CumulativeMaxCompletions,
         CumulativeMaxPassYardsPerAttempt,
         CumulativeMinPassingTouchdowns,
         CumulativeMinPassingYards,
         CumulativeMinPassingAttempts,
         CumulativeMinPassingRating,
         CumulativeMinCompletions,
         CumulativeMinPassYardsPerAttempt)
eda_derived$Week <- as.factor(eda_derived$Week)
```

4 : Structures QBCrossSectional (Quarterbacks)

```
summary(QBCrossSectional)
```

```
##      PlayerID      Name      Week      Position
## Min.      : 611   Length:453   Min.      : 1.000   Length:453
## 1st Qu.: 7242   Class :character 1st Qu.: 5.000   Class :character
## Median :13723   Mode  :character Median : 9.000   Mode  :character
## Mean    :11932                      Mean    : 9.049
## 3rd Qu.:16763                      3rd Qu.:13.000
## Max.    :19029                      Max.    :17.000
##      Opponent      TeamIsHome      GameDate      PassingCompletions
## Length:453         Mode :logical   Length:453     Min.      : 5.00
## Class :character   FALSE:226     Class :character 1st Qu.:18.00
## Mode  :character   TRUE :227     Mode  :character Median :21.00
##                                     Mean    :21.24
##                                     3rd Qu.:25.00
##                                     Max.    :44.00
##      Result      PassingAttempts PassingCompletionPercentage
## Length:453       Min.      :10.00   Min.      :38.70
## Class :character 1st Qu.:29.00   1st Qu.:57.10
## Mode  :character Median :33.00   Median :63.20
##                                     Mean    :33.62   Mean    :63.48
##                                     3rd Qu.:38.00   3rd Qu.:69.40
##                                     Max.    :66.00   Max.    :87.00
##      PassingYards PassingYardsPerAttempt PassingTouchdowns
## Min.      : 57.0   Min.      : 3.100   Min.      :0.000
```

```
## 1st Qu.:199.0 1st Qu.: 6.200 1st Qu.:1.000
## Median :241.0 Median : 7.200 Median :1.000
## Mean :244.6 Mean : 7.378 Mean :1.587
## 3rd Qu.:291.0 3rd Qu.: 8.400 3rd Qu.:2.000
## Max. :506.0 Max. :14.100 Max. :5.000
## PassingInterceptions PassingRating RushingAttempts RushingYards
## Min. :0.00 Min. : 31.14 Min. : 0.000 Min. : -8.00
## 1st Qu.:0.00 1st Qu.: 77.92 1st Qu.: 1.000 1st Qu.: 0.00
## Median :0.00 Median : 92.94 Median : 3.000 Median : 8.00
## Mean :0.66 Mean : 93.88 Mean : 3.185 Mean :14.38
## 3rd Qu.:1.00 3rd Qu.:109.84 3rd Qu.: 5.000 3rd Qu.:23.00
## Max. :4.00 Max. :150.69 Max. :14.000 Max. :95.00
## RushingYardsPerAttempt RushingTouchdowns FumblesLost FantasyPoints
## Min. : -2.700 Min. :0.0000 Min. :0.0000 Min. : 7.12
## 1st Qu.: 0.000 1st Qu.:0.0000 1st Qu.:0.0000 1st Qu.:11.86
## Median : 3.000 Median :0.0000 Median :0.0000 Median :15.86
## Mean : 3.839 Mean :0.1457 Mean :0.1766 Mean :16.89
## 3rd Qu.: 6.000 3rd Qu.:0.0000 3rd Qu.:0.0000 3rd Qu.:20.68
## Max. :70.000 Max. :2.0000 Max. :3.0000 Max. :37.64
## Team
## Length:453
## Class :character
## Mode :character
##
##
##
```

5 : struture with Derived features

```
summary(eda_derived)
```

```
## Week FantasyPoints CumulativeAveragePassingYards
## 2 : 25 Min. : 7.32 Min. :120.5
## 3 : 24 1st Qu.:12.61 1st Qu.:221.9
## 4 : 24 Median :16.16 Median :247.8
## 13 : 24 Mean :17.22 Mean :246.6
## 14 : 24 3rd Qu.:20.70 3rd Qu.:271.5
## 7 : 23 Max. :37.64 Max. :369.0
## (Other):224
## CumulativeAveragePassingTouchdowns CumulativeAveragePassingInterceptions
## Min. :0.000 Min. :0.0000
## 1st Qu.:1.250 1st Qu.:0.4125
## Median :1.667 Median :0.5714
## Mean :1.584 Mean :0.5933
## 3rd Qu.:2.000 3rd Qu.:0.7500
## Max. :4.000 Max. :2.0000
##
## CumulativeAveragePassingRating CumulativeAverageCompletions
## Min. : 56.25 Min. :10.00
## 1st Qu.: 87.77 1st Qu.:19.56
## Median : 97.01 Median :21.85
## Mean : 95.86 Mean :21.43
## 3rd Qu.:102.53 3rd Qu.:23.13
```

```

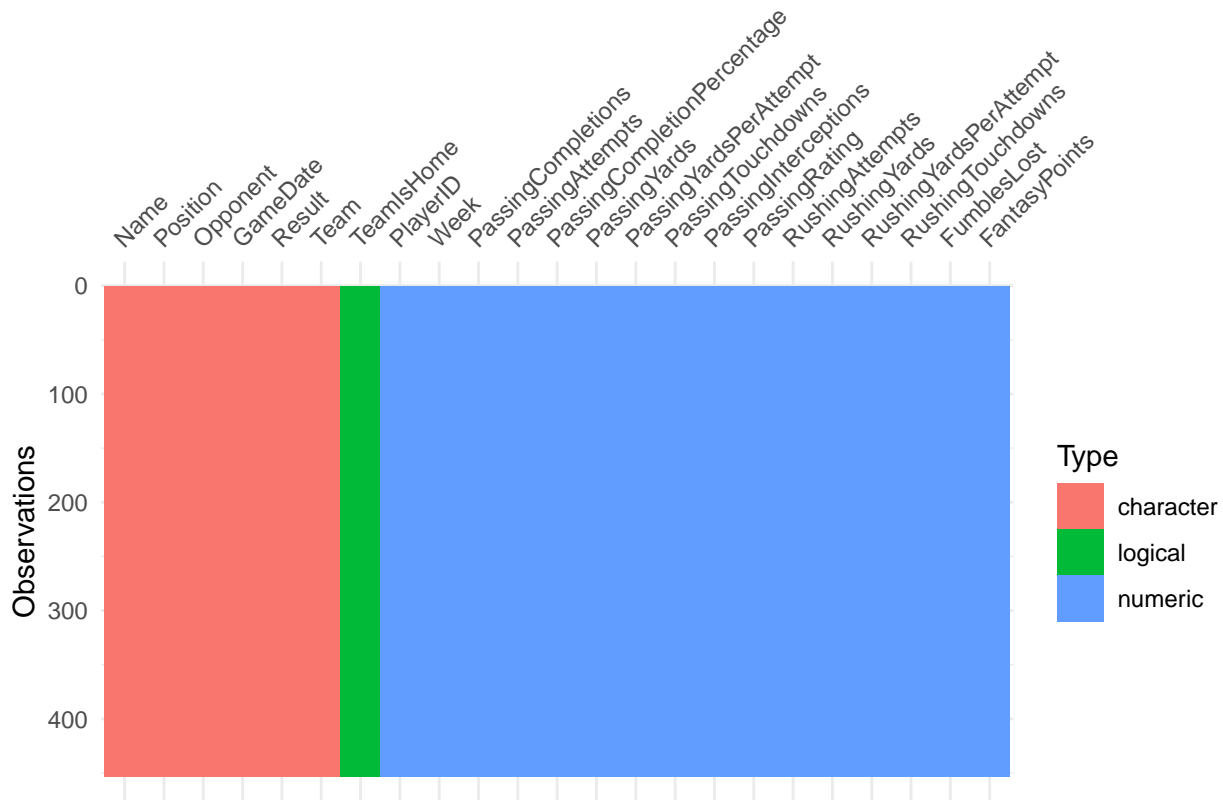
## Max. :148.57 Max. :29.00
##
## CumulativeAverageCompletionPercentage CumulativeMaxPassingTouchdowns
## Min. :44.40 Min. :0.00
## 1st Qu.:61.60 1st Qu.:2.00
## Median :64.13 Median :3.00
## Mean :64.42 Mean :2.91
## 3rd Qu.:67.37 3rd Qu.:4.00
## Max. :80.00 Max. :5.00
##
## CumulativeMaxPassingYards CumulativeMaxPassingAttempts
## Min. :125.0 Min. :21.00
## 1st Qu.:288.0 1st Qu.:39.00
## Median :332.0 Median :44.00
## Mean :331.3 Mean :43.31
## 3rd Qu.:368.0 3rd Qu.:49.00
## Max. :506.0 Max. :66.00
##
## CumulativeMaxPassingRating CumulativeMaxCompletions
## Min. : 56.25 Min. :11.00
## 1st Qu.:110.80 1st Qu.:25.00
## Median :125.96 Median :28.00
## Mean :123.69 Mean :27.42
## 3rd Qu.:141.79 3rd Qu.:30.00
## Max. :150.69 Max. :44.00
##
## CumulativeMaxPassYardsPerAttempt CumulativeMinPassingTouchdowns
## Min. : 4.800 Min. :0.0000
## 1st Qu.: 8.500 1st Qu.:0.0000
## Median :10.500 Median :0.0000
## Mean : 9.859 Mean :0.4647
## 3rd Qu.:10.900 3rd Qu.:1.0000
## Max. :14.100 Max. :4.0000
##
## CumulativeMinPassingYards CumulativeMinPassingAttempts
## Min. : 69.0 Min. :10.00
## 1st Qu.:128.0 1st Qu.:21.00
## Median :158.0 Median :24.00
## Mean :168.1 Mean :24.13
## 3rd Qu.:204.0 3rd Qu.:27.00
## Max. :369.0 Max. :41.00
##
## CumulativeMinPassingRating CumulativeMinCompletions
## Min. : 31.14 Min. : 6.00
## 1st Qu.: 59.66 1st Qu.:12.00
## Median : 68.58 Median :14.00
## Mean : 69.27 Mean :14.91
## 3rd Qu.: 77.92 3rd Qu.:17.00
## Max. :148.57 Max. :29.00
##
## CumulativeMinPassYardsPerAttempt
## Min. : 3.100
## 1st Qu.: 4.800
## Median : 5.800

```

```
## Mean : 5.704
## 3rd Qu.: 6.200
## Max. :11.200
##
```

6 : QBCrossSectional - Check Missing Data

```
vis_dat(QBCrossSectional)
```



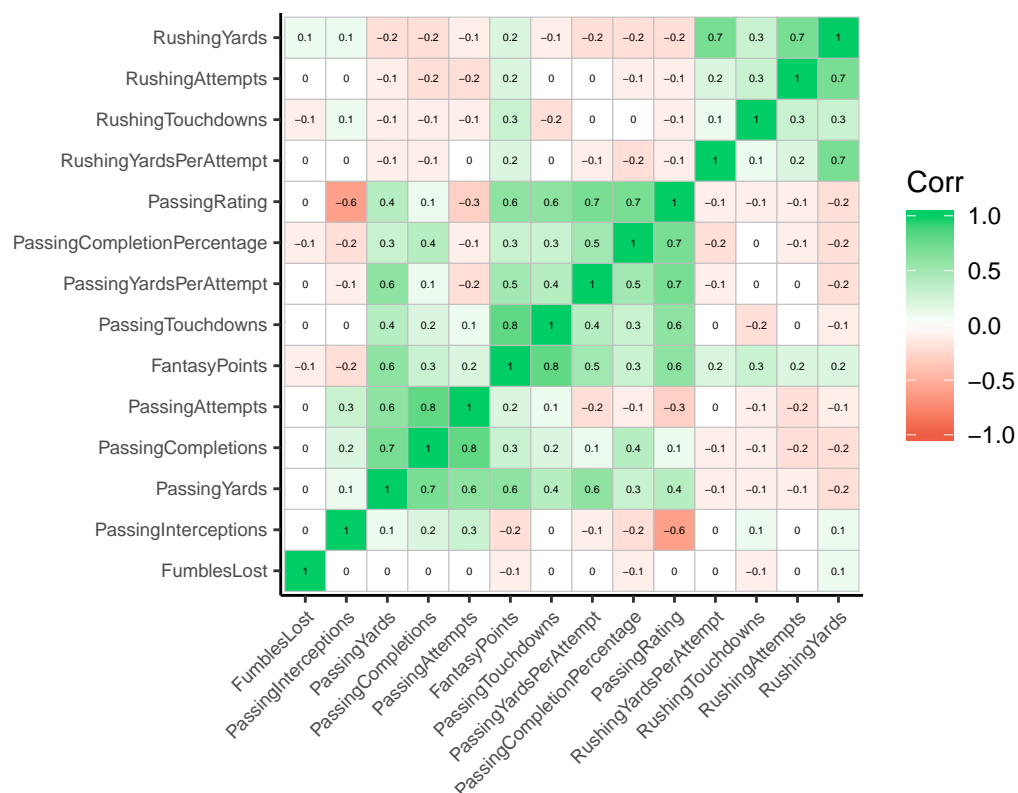
7 : Correlogram

```
## 7.1 : Base Feature Set
```

```
corr <- round(cor(eda_base[-1]), 1)

ggcorrplot(corr, hc.order = TRUE,
  type = "full",
  lab = TRUE,
  lab_size = 1.5,
  method="square",
  colors = c("tomato2", "white", "springgreen3"),
  title = "Correlogram of Base QB features",
  tl.cex = 7, pch=2, pch.col = 3, show.diag = T,
  ggtheme=theme_classic)
```


Correlogram of Base QB features

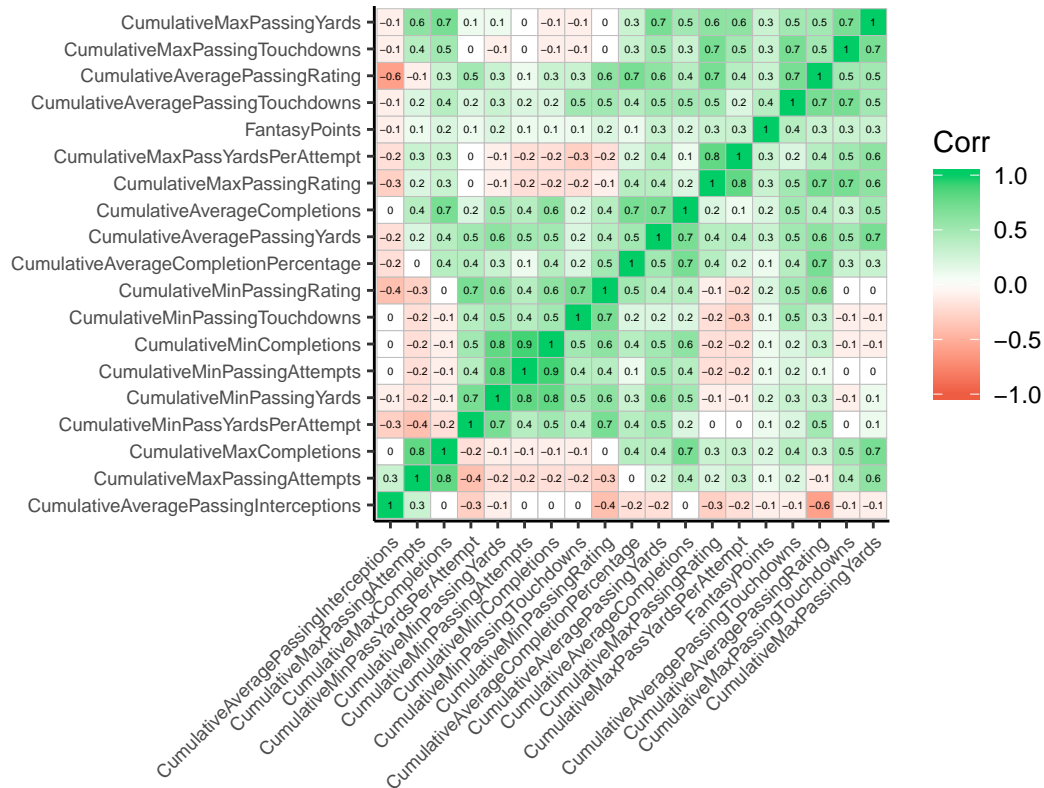


7.2 : Derived Feature Set

```
corr <- round(cor(eda_derived[-1]), 1)
```

```
ggcorrplot(corr, hc.order = TRUE,
  type = "full",
  lab = TRUE,
  lab_size = 1.5,
  method="square",
  colors = c("tomato2", "white", "springgreen3"),
  title = "Correlogram of Derived QB features",
  tl.cex = 7,pch=2,pch.col =3,show.diag = T,
  ggtheme=theme_classic)
```

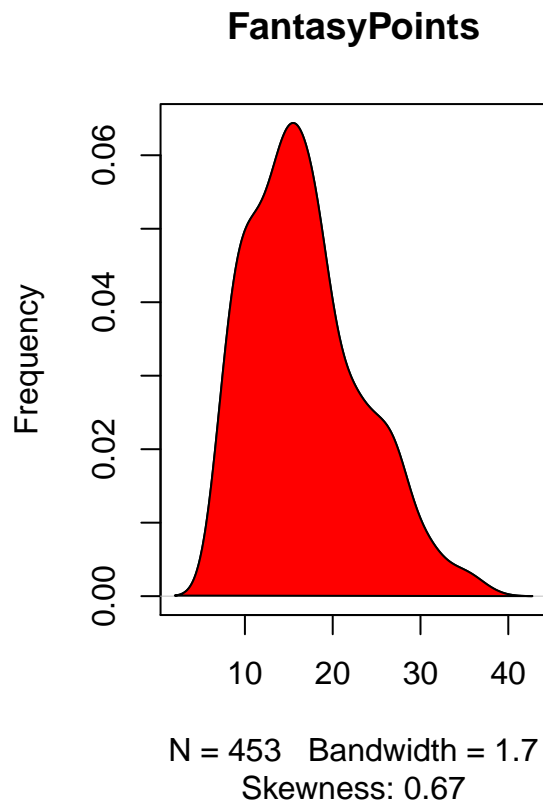
Correlogram of Derived QB features



8 : Distributions

8.1 Density plot for FantasyPoints is approximately Normal

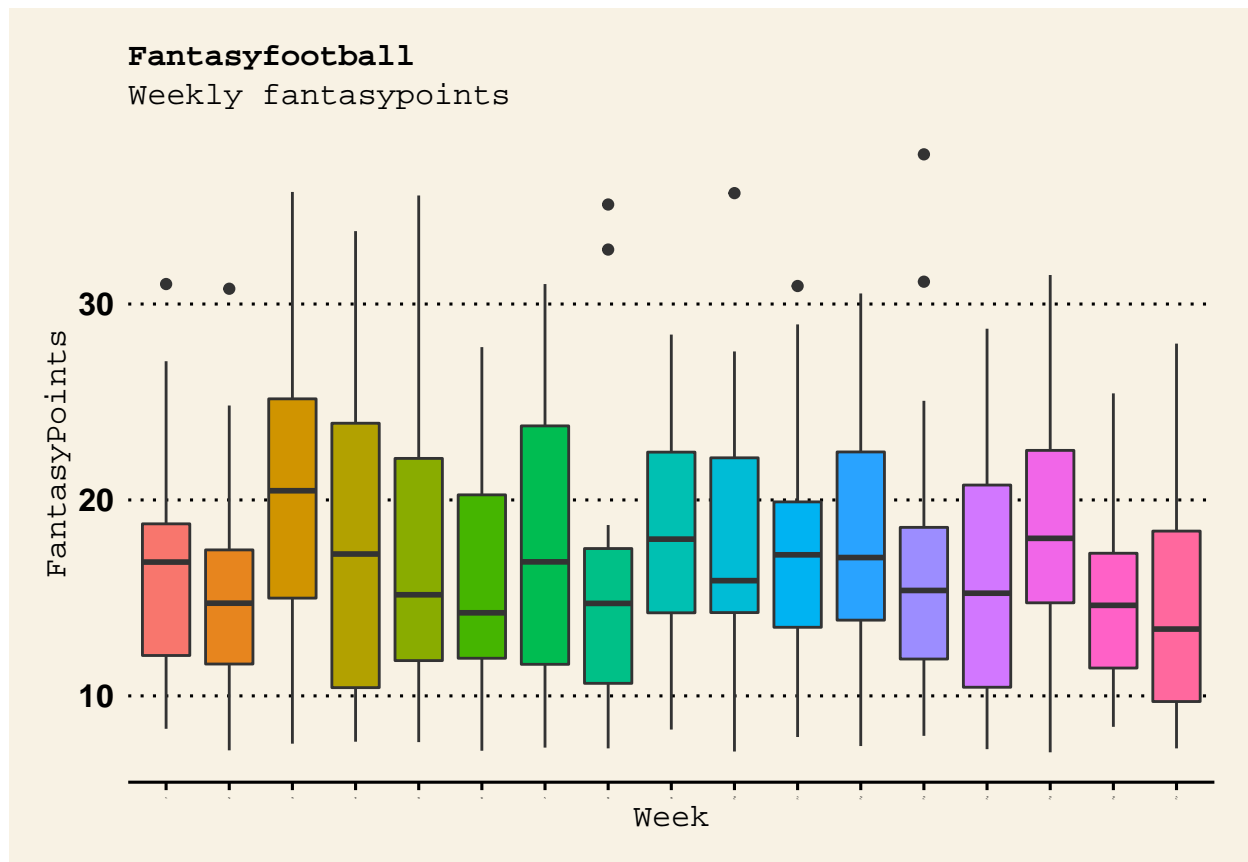
```
par(mfrow=c(1, 2)) # divide graph area in 2 columns
target <- QBCrossSectional$FantasyPoints
plot(density(target), main="FantasyPoints", ylab="Frequency", sub=paste("Skewness:", round(e1071::skewness(target), 2)))
polygon(density(target), col="red")
```



8.2 : Boxplots - Target and Individual Predictor Behavior for per Team

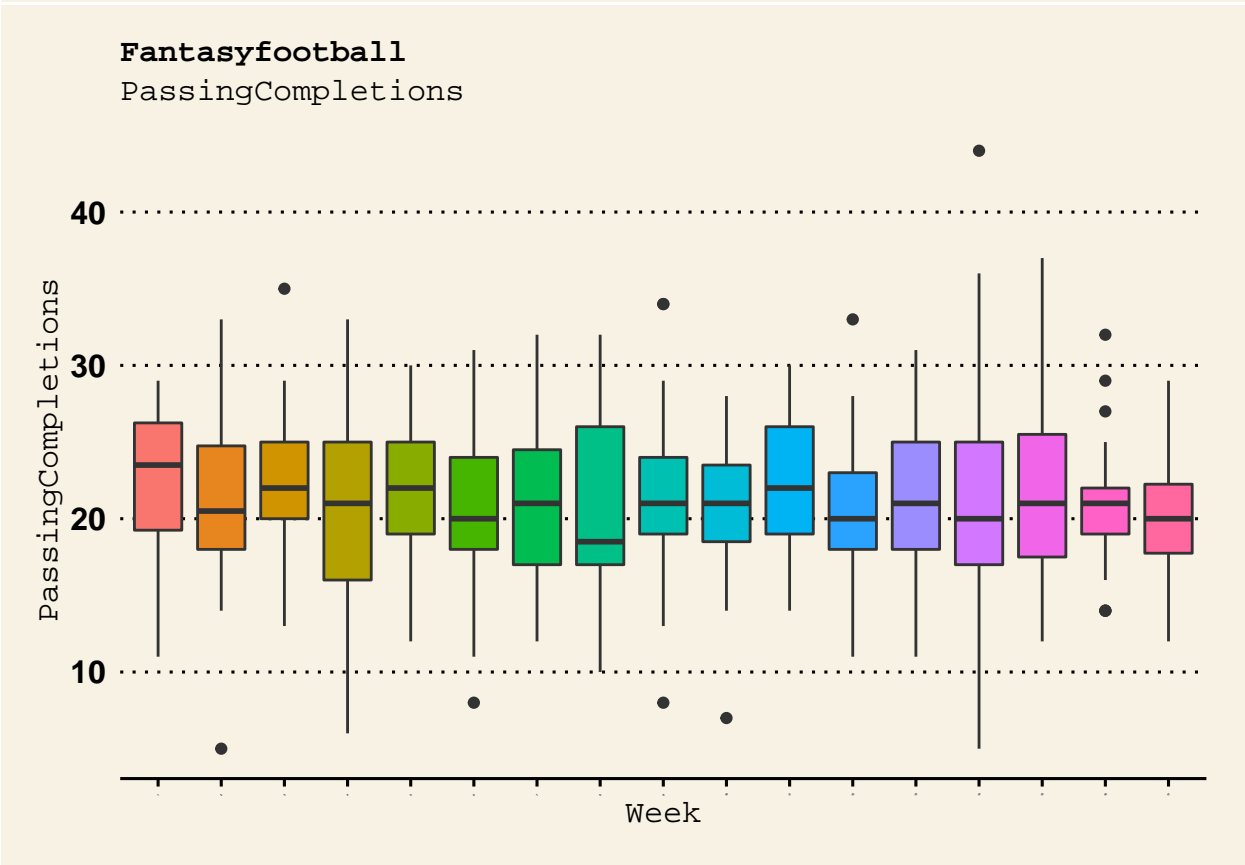
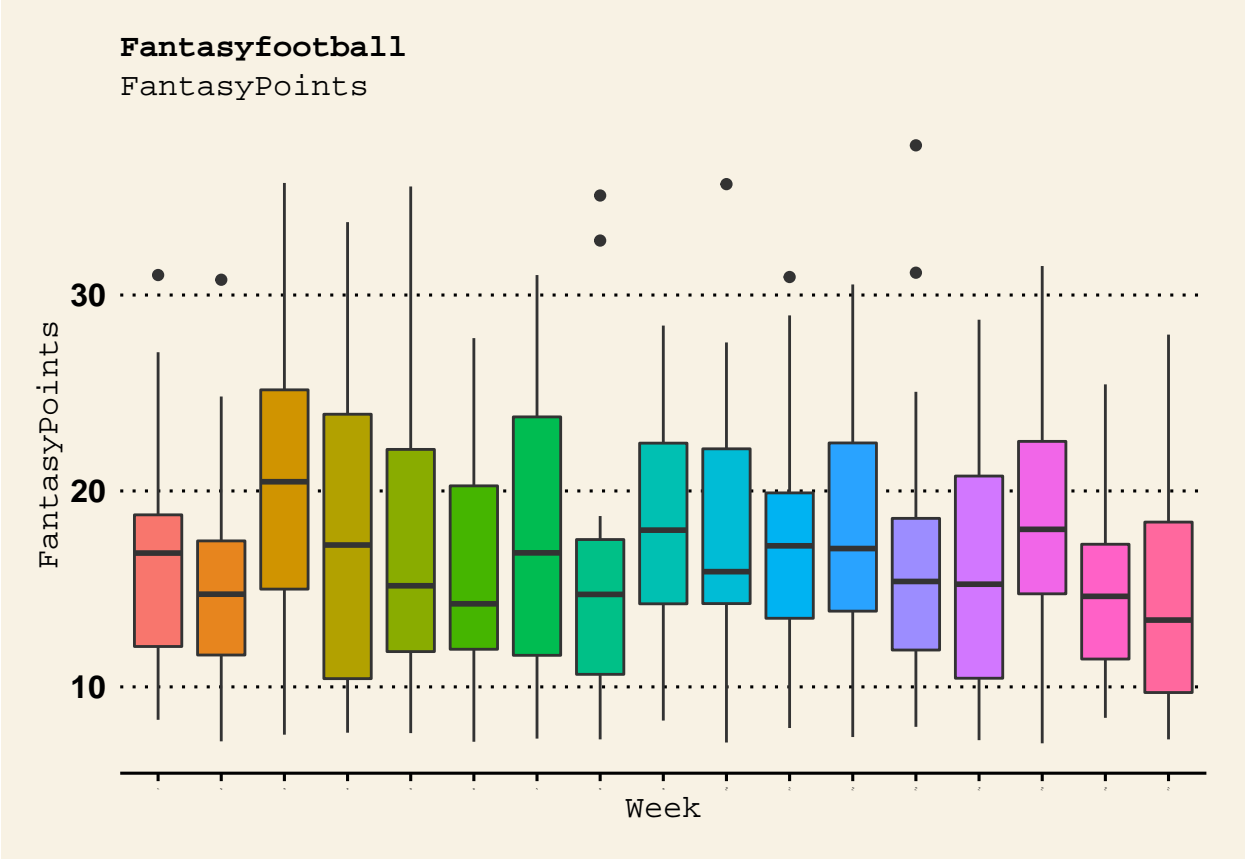
8.2.1 Base Feature set

```
eda_base %>% ggplot(aes(y=FantasyPoints,x=Week,fill=Week,group=Week))+
  geom_boxplot(show.legend = FALSE)+
  xlab("Week")+ylab("FantasyPoints")+
  labs(title="Fantasyfootball",
        subtitle="Weekly fantasypoints",
        caption="Source: Fantasyfootball")+
  theme_wsj()+
  theme(plot.title = element_text(size = rel(0.5)),
        plot.subtitle = element_text(size = rel(0.5)),
        axis.text.x = element_text(angle=65, vjust=0.6,size=1),
        axis.title = element_text(size = rel(0.5)),
        legend.position = "right",
        legend.direction = "vertical",
        legend.title = element_text(size = rel(0.5)))
```

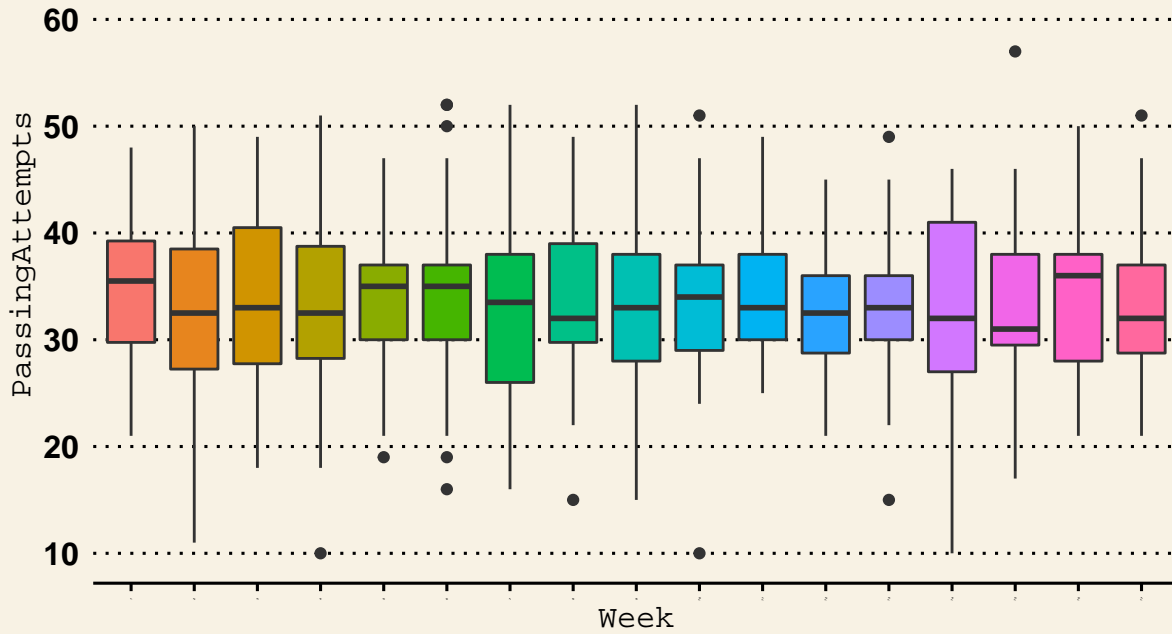


```
for (i in 2:15) {
  ggplotp <- eda_base %>%
    ggplot(aes_string(y=names(eda_base[i]),x="Week",fill="Week",group="Week"))+
    geom_boxplot(show.legend = FALSE)+
    xlab("Week")+ylab(names(eda_base[i]))+
    labs(title="Fantasyfootball",
         subtitle=names(eda_base[i]),
         aption="Source: Fantasyfootball")+
    theme_wsj()+
    theme(plot.title = element_text(size = rel(0.5)),
          plot.subtitle = element_text(size = rel(0.5)),
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),
          axis.title = element_text(size = rel(0.5)),
          legend.position = "right",
          legend.direction = "vertical",
          legend.title = element_text(size = rel(0.5)))

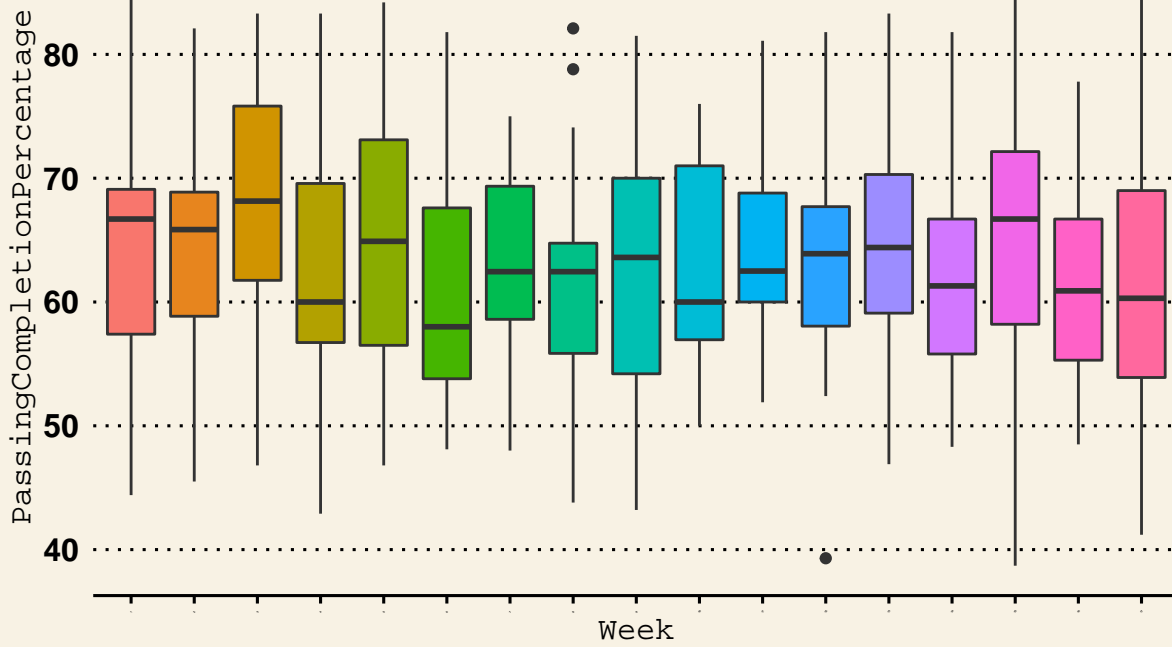
  print(ggplotp)
}
```

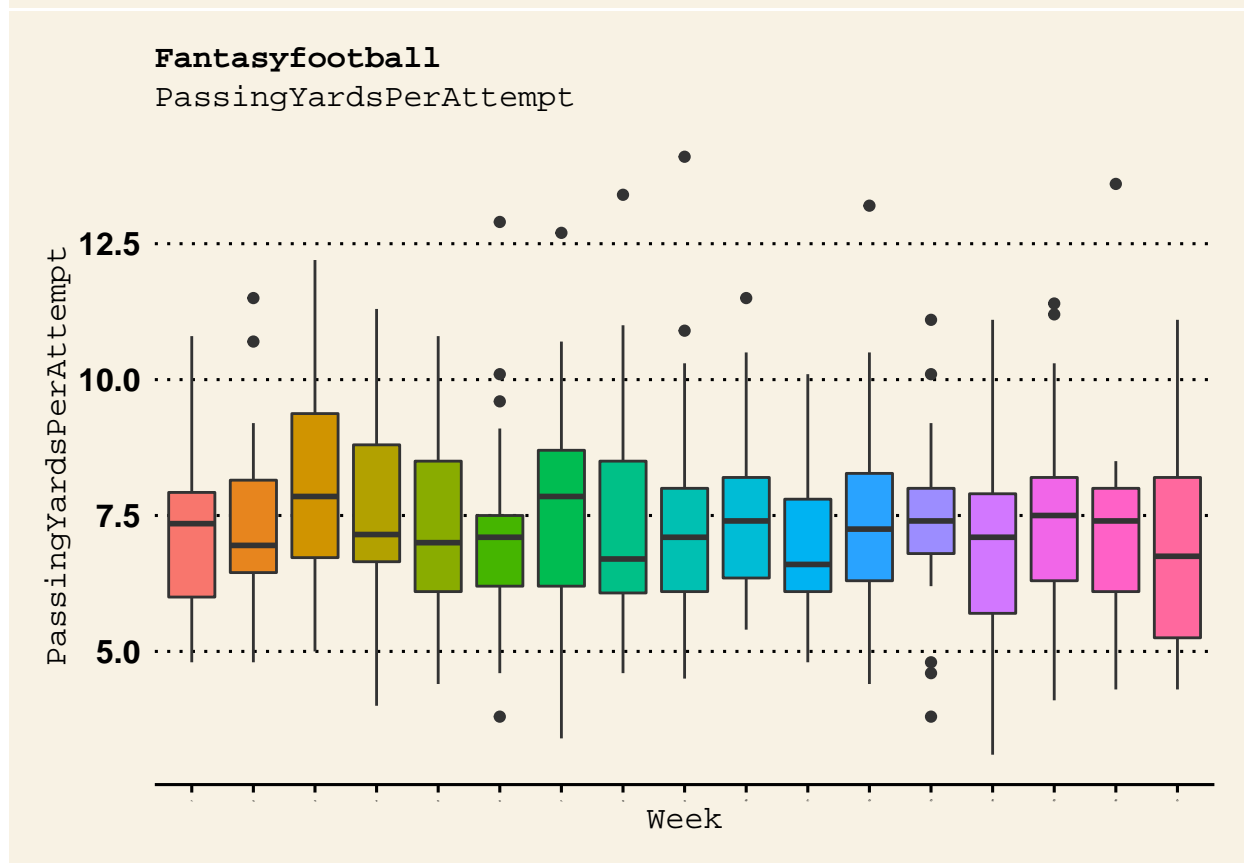
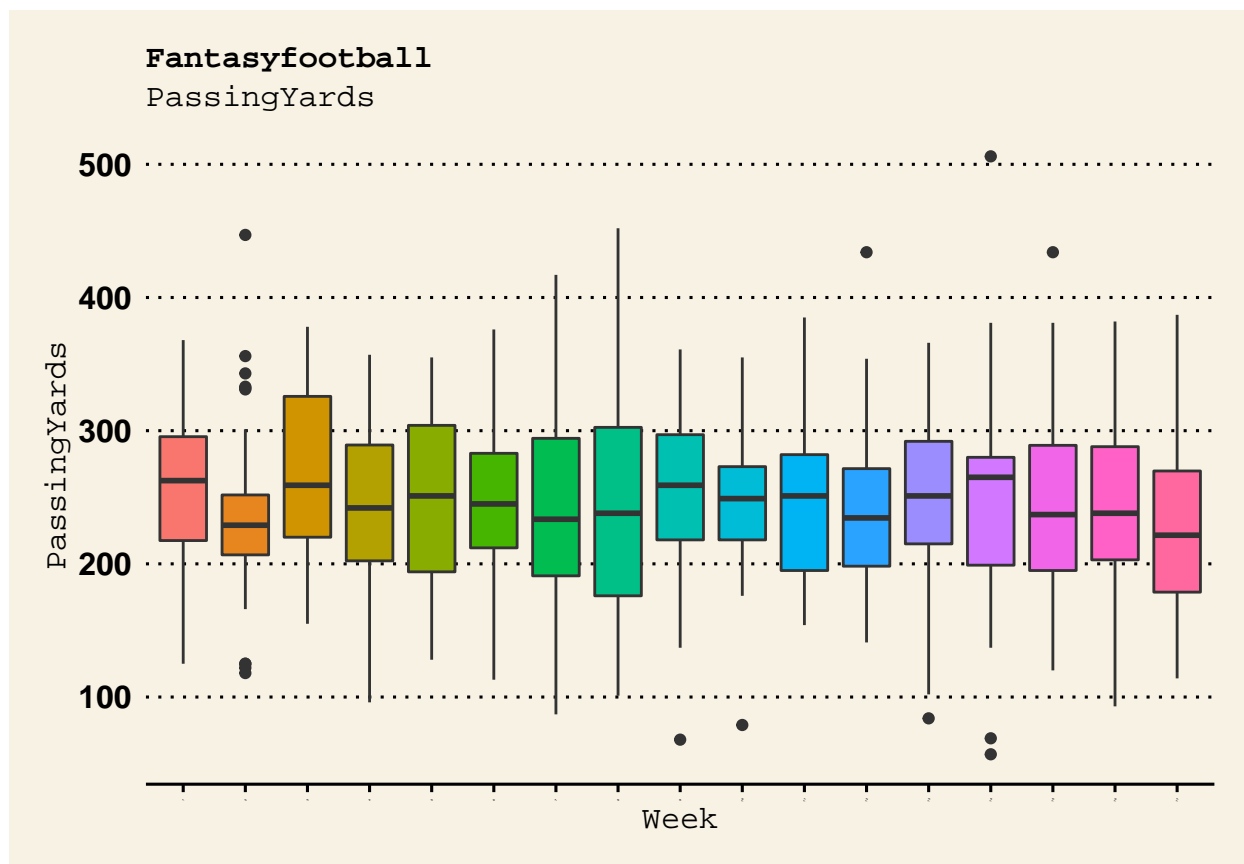


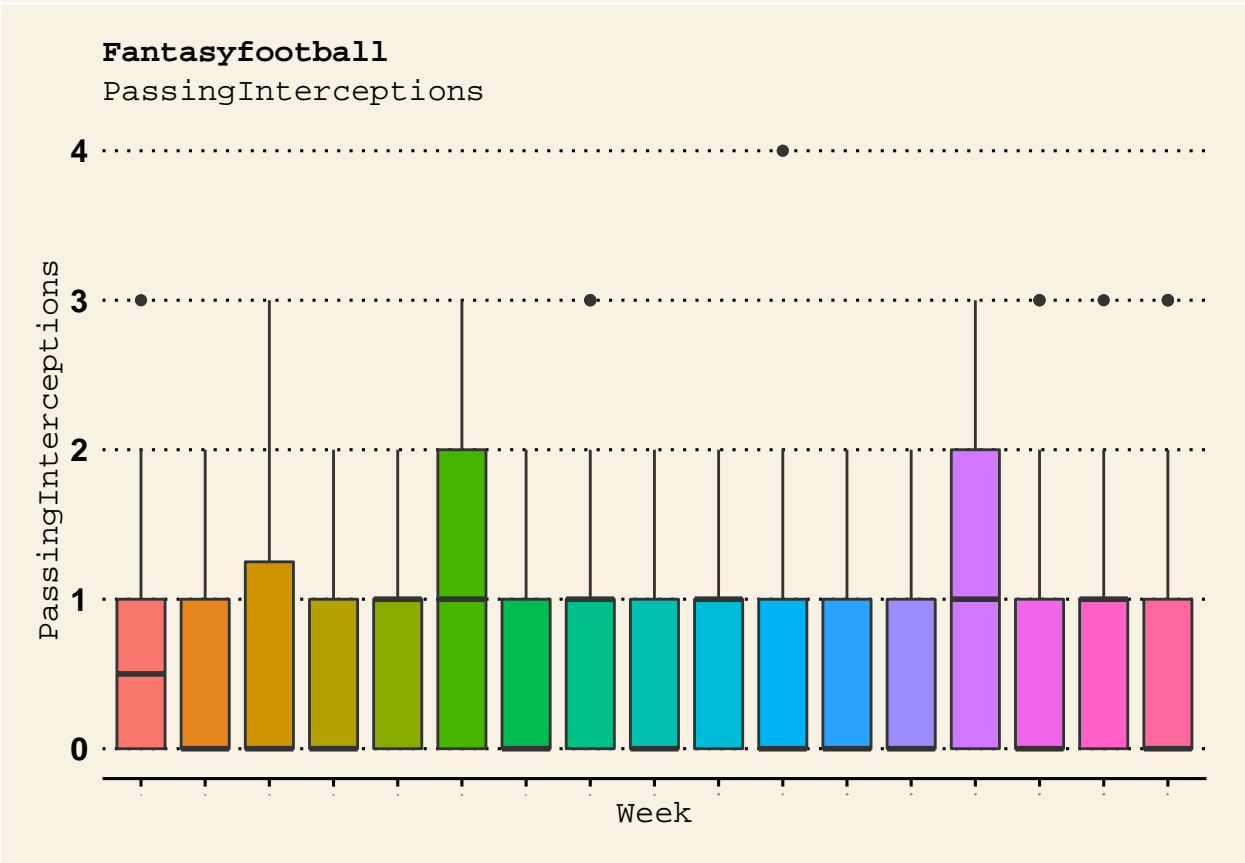
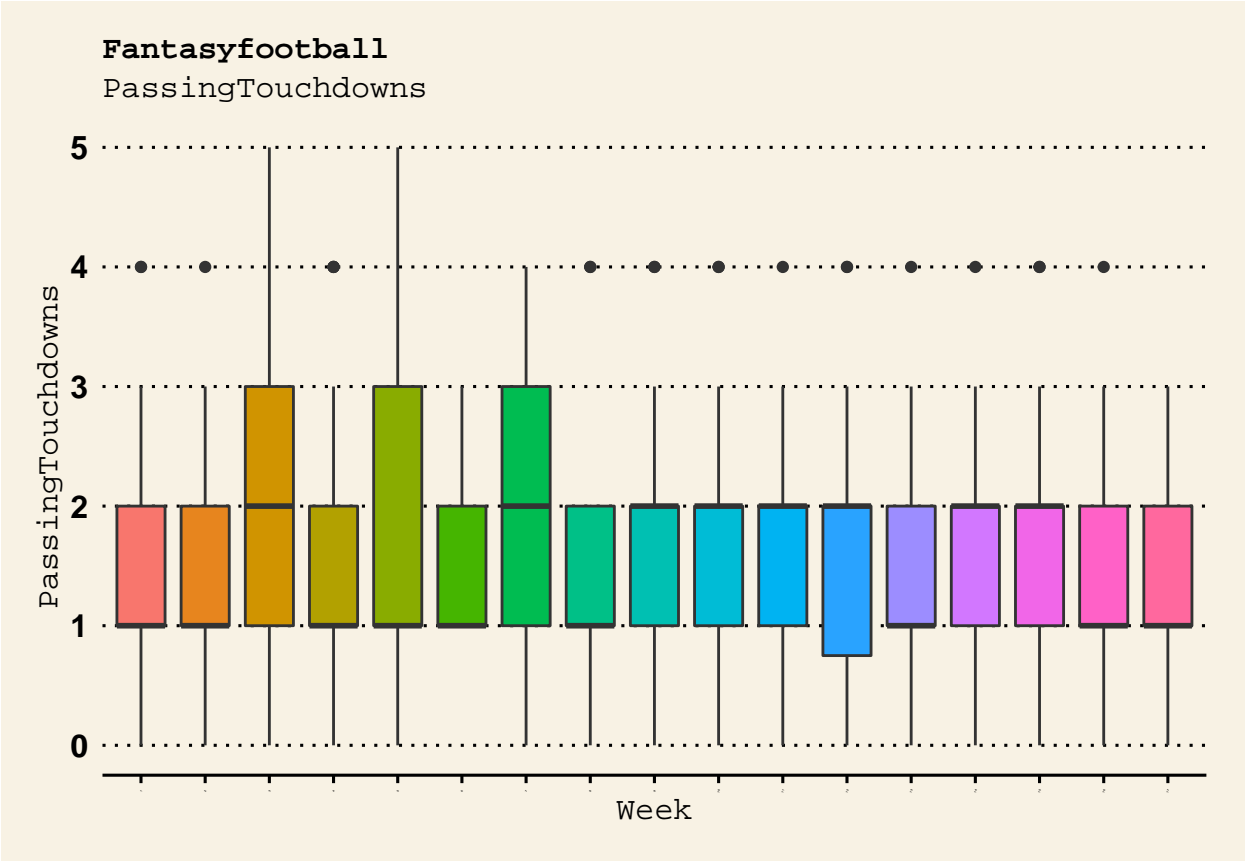
Fantasyfootball
PassingAttempts

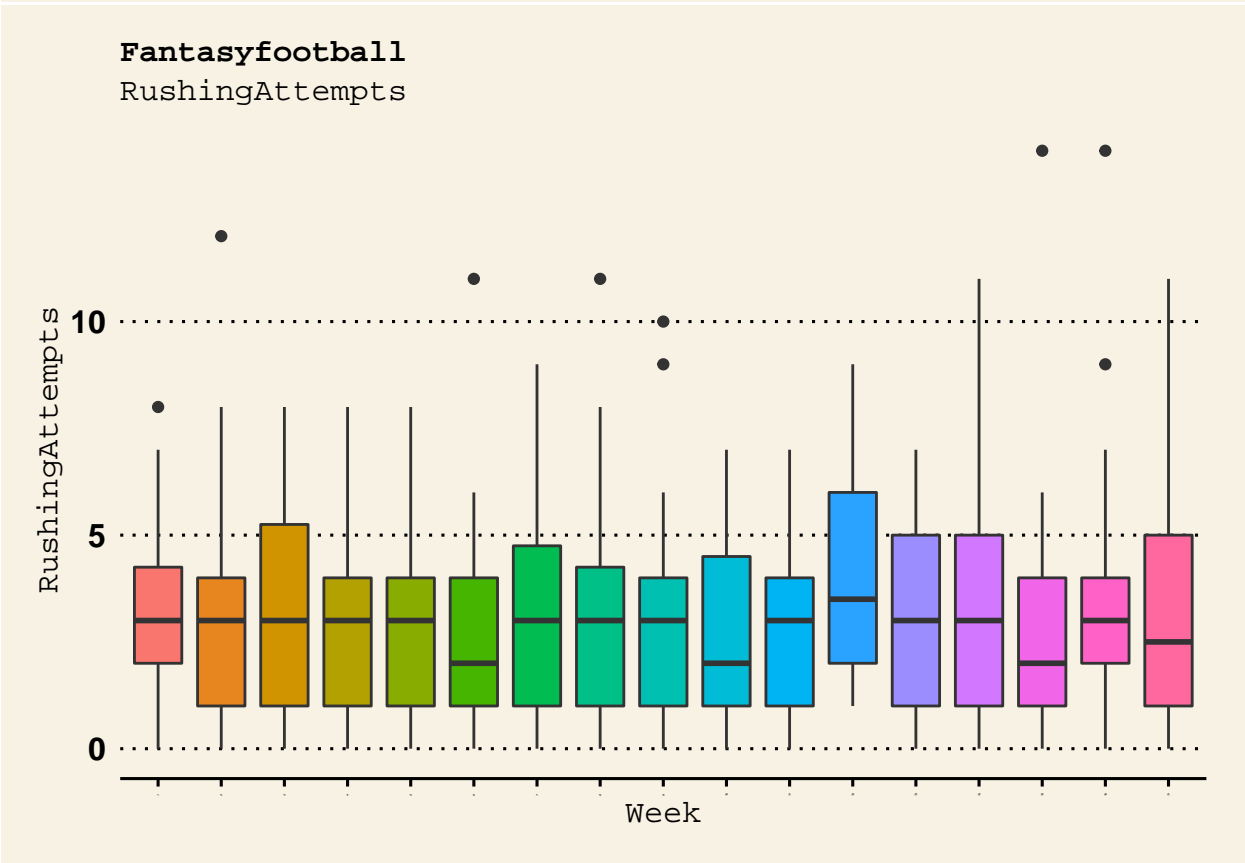
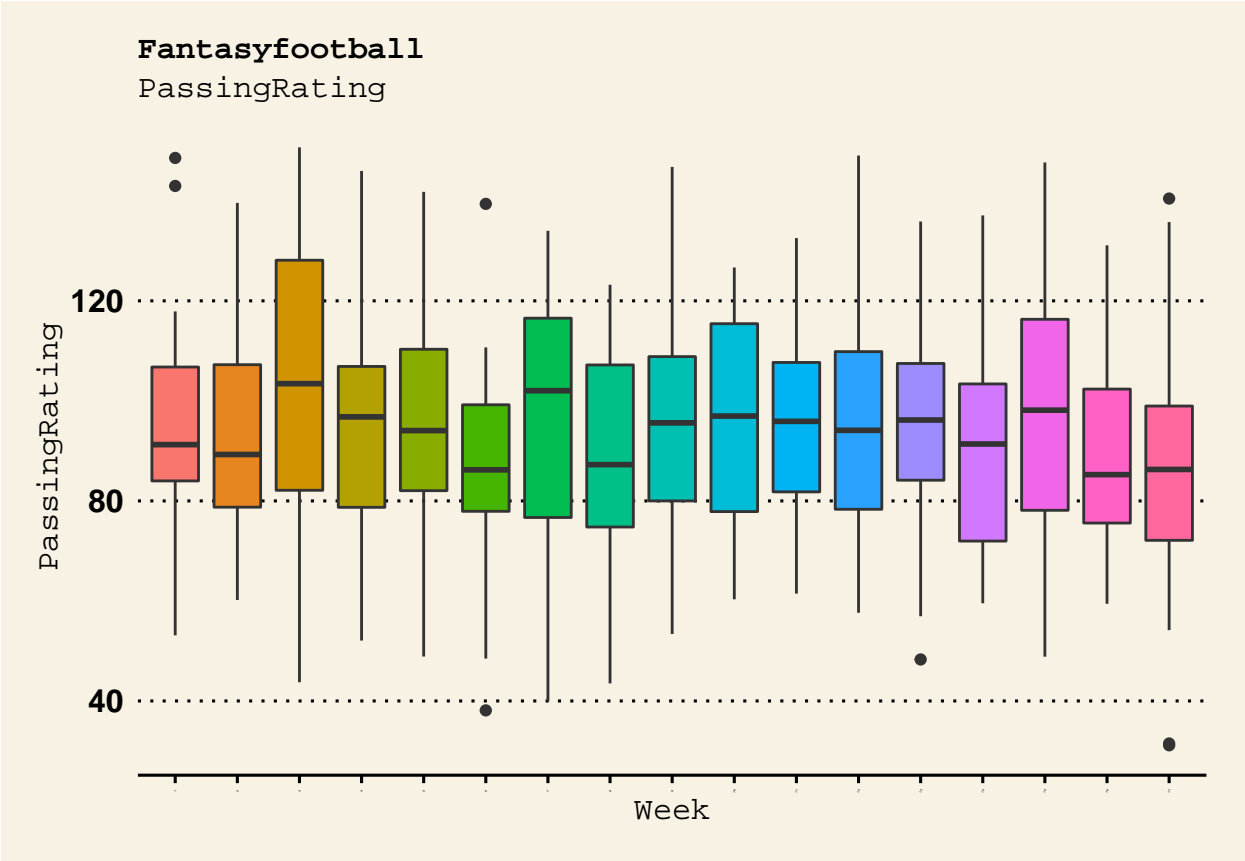


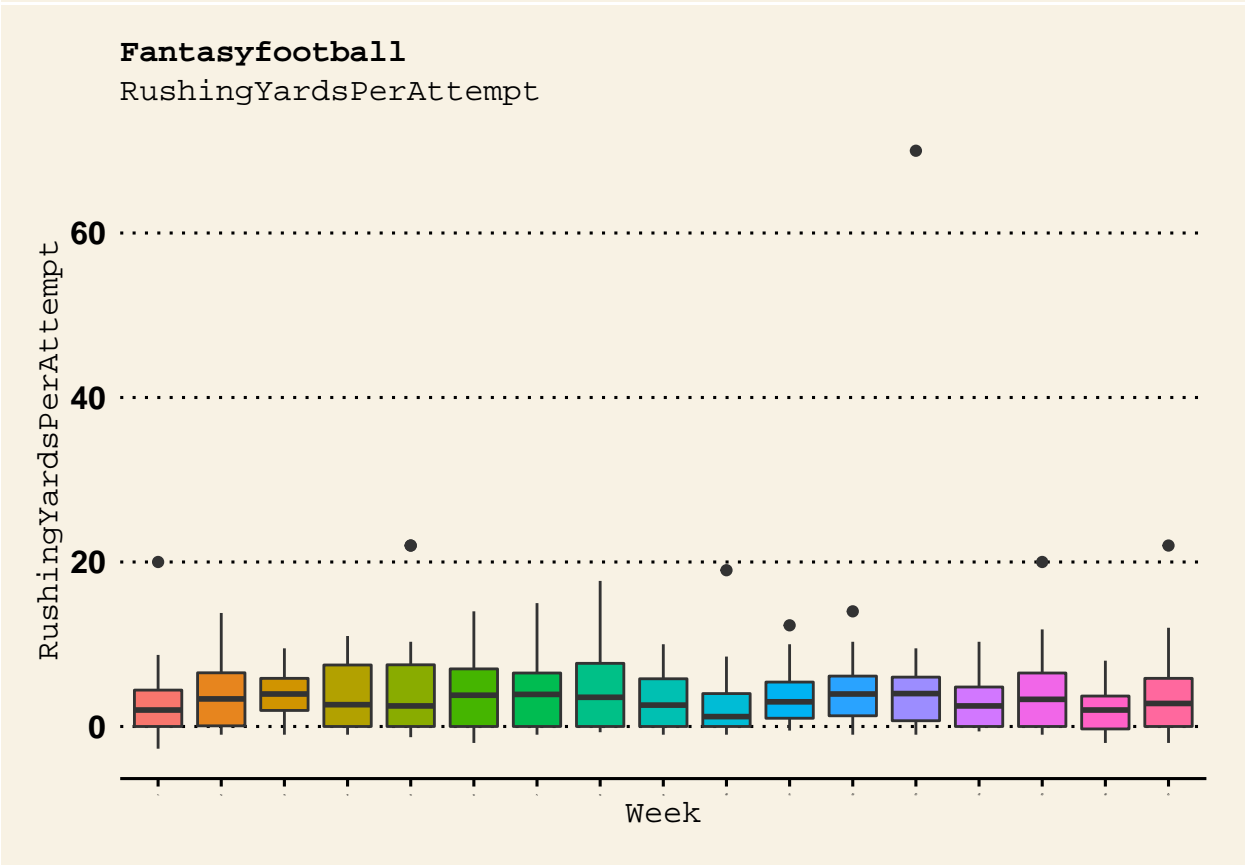
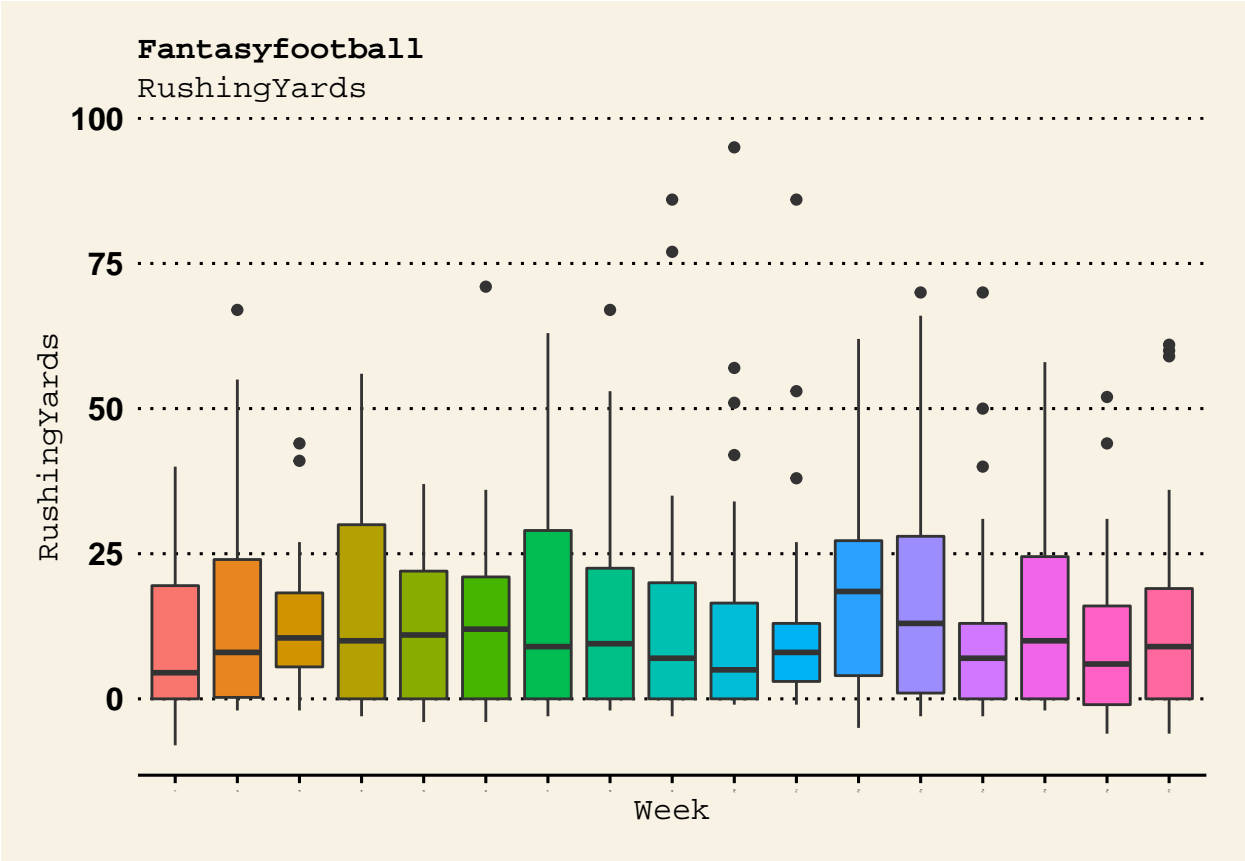
Fantasyfootball
PassingCompletionPercentage

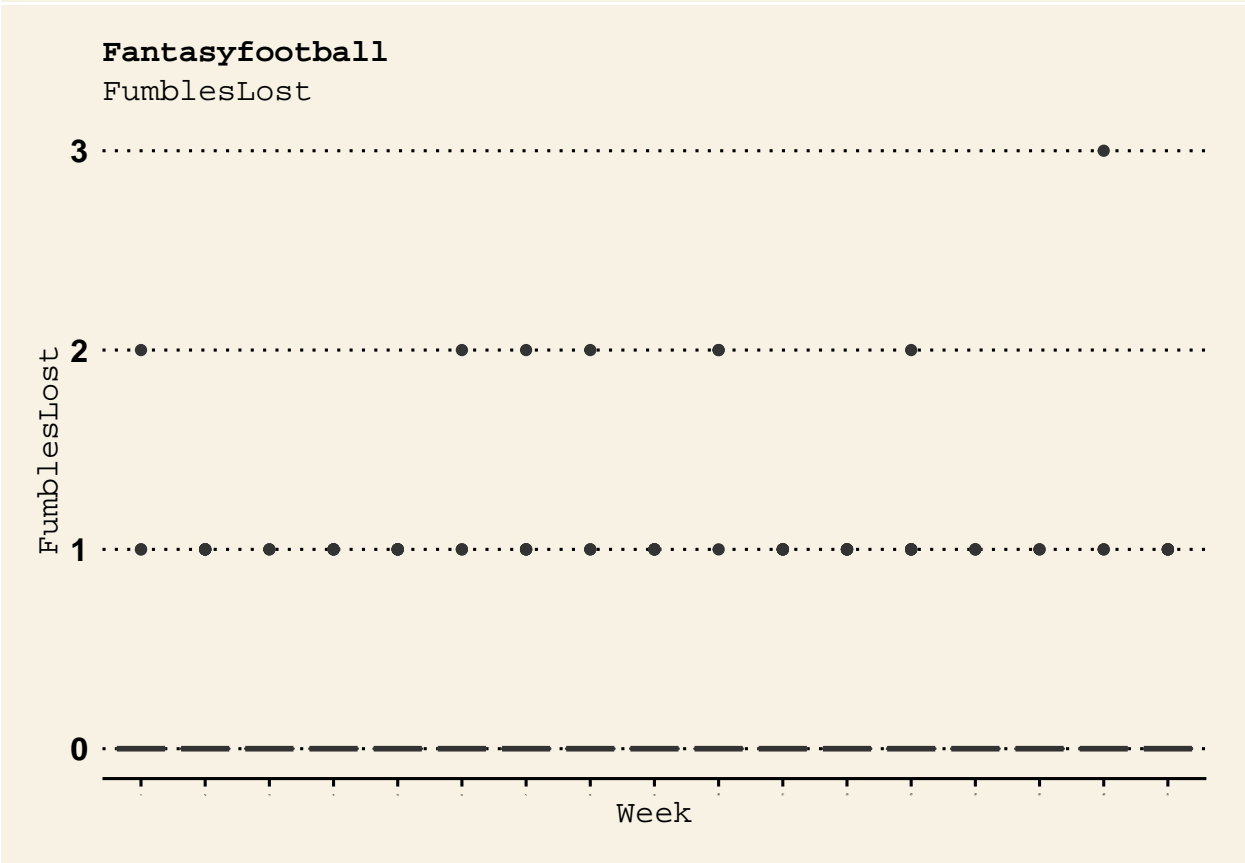
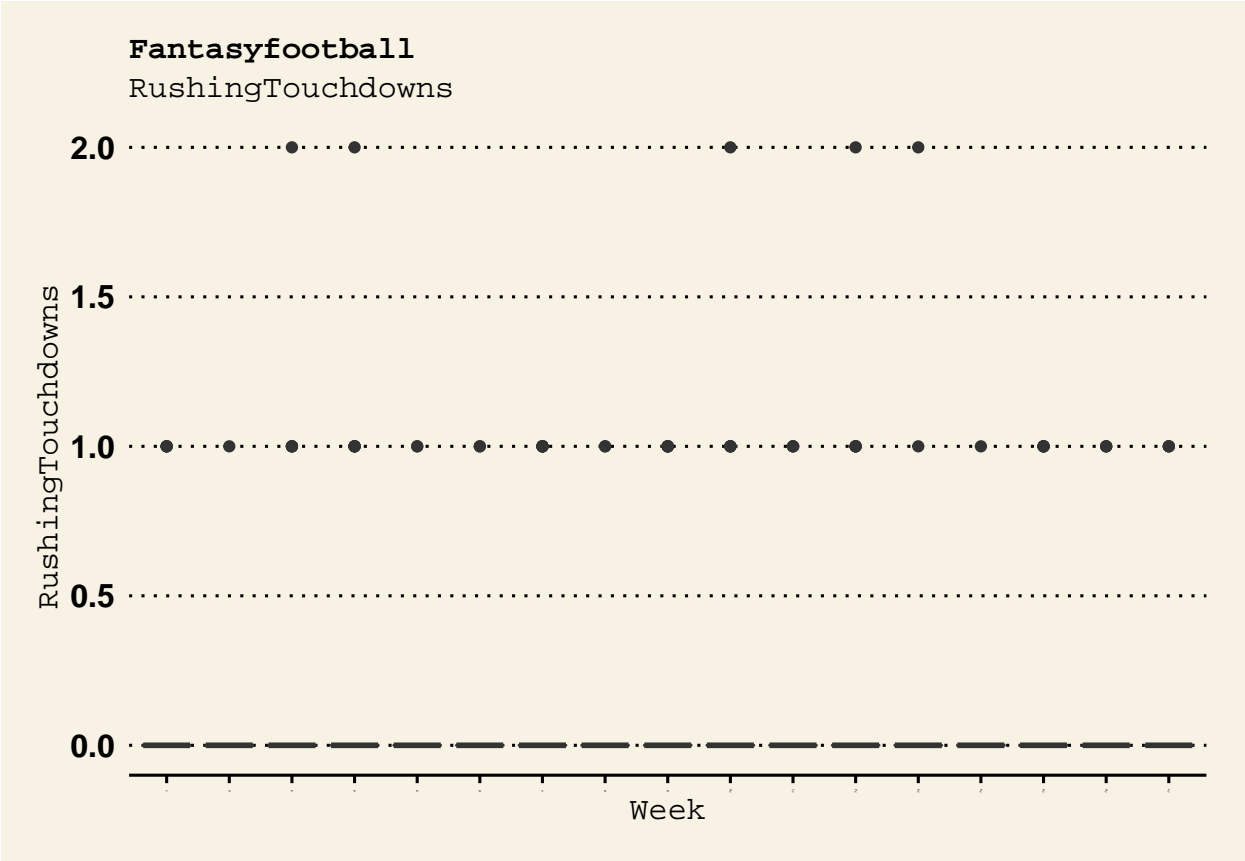






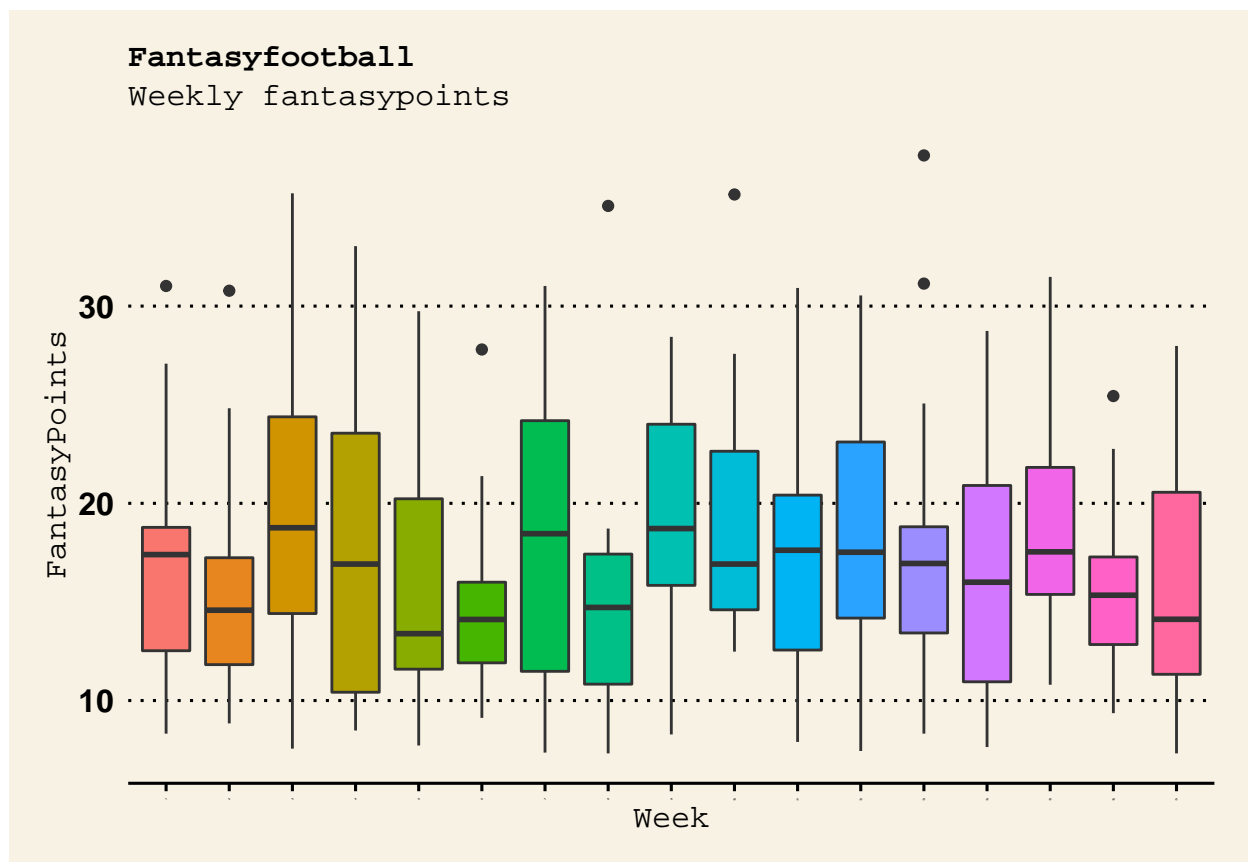






8.2.3 Boxplots Derived Feature set

```
eda_derived %>% ggplot(aes(y=FantasyPoints,x=Week,fill=Week,group=Week))+
  geom_boxplot(show.legend = FALSE)+
  xlab("Week")+ylab("FantasyPoints")+
  labs(title="Fantasyfootball",
        subtitle="Weekly fantasypoints",
        aption="Source: Fantasyfootball")+
  theme_wsj()+
  theme(plot.title = element_text(size = rel(0.5)),
        plot.subtitle = element_text(size = rel(0.5)),
        axis.text.x = element_text(angle=65, vjust=0.6,size=1),
        axis.title = element_text(size = rel(0.5)),
        legend.position = "right",
        legend.direction = "vertical",
        legend.title = element_text(size = rel(0.5)))
```



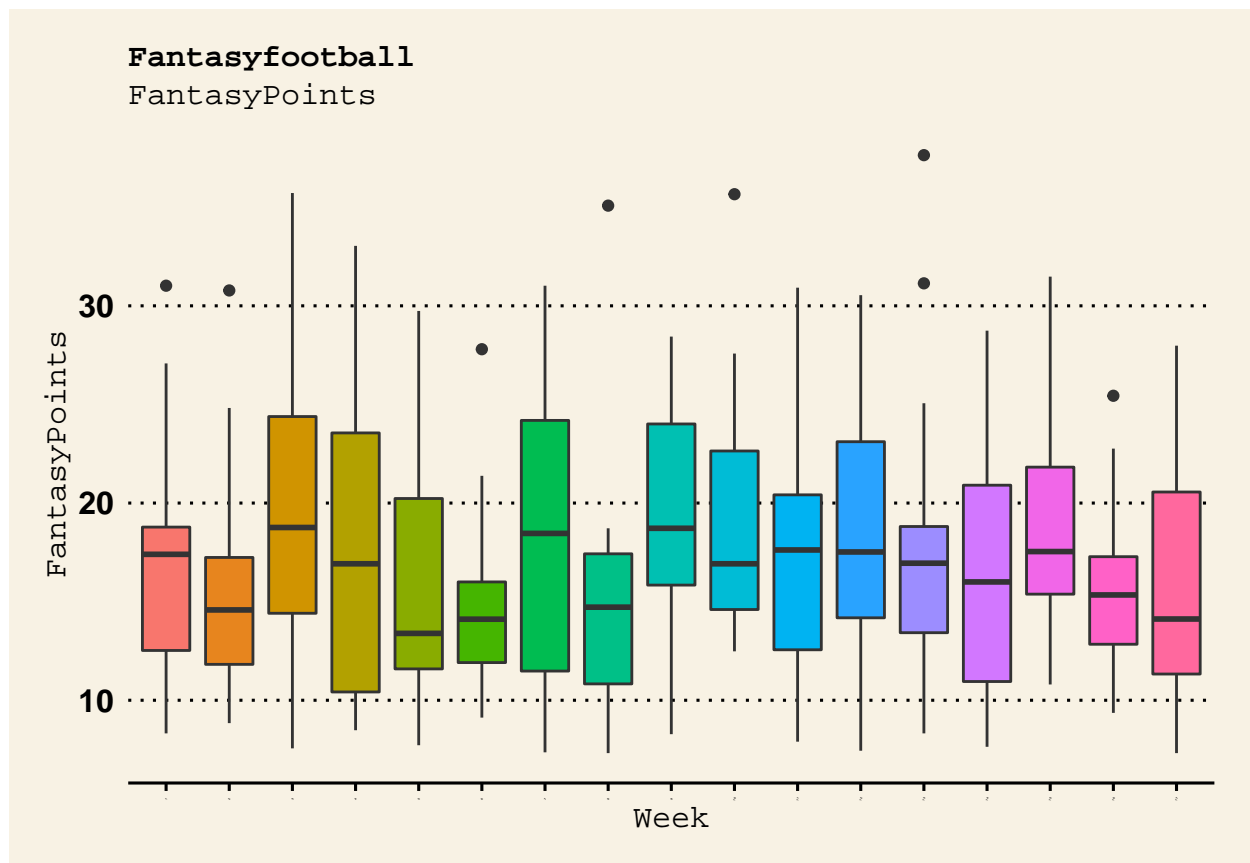
```
for (i in 2:20) {
  ggplotp <- eda_derived %>%
    ggplot(aes_string(y=names(eda_derived[i]),x="Week",fill="Week",group="Week"))+
    geom_boxplot(show.legend = FALSE)+
    xlab("Week")+ylab(names(eda_derived[i]))+
    labs(title="Fantasyfootball",
          subtitle=names(eda_derived[i]),
          aption="Source: Fantasyfootball")+
    theme_wsj()+
```

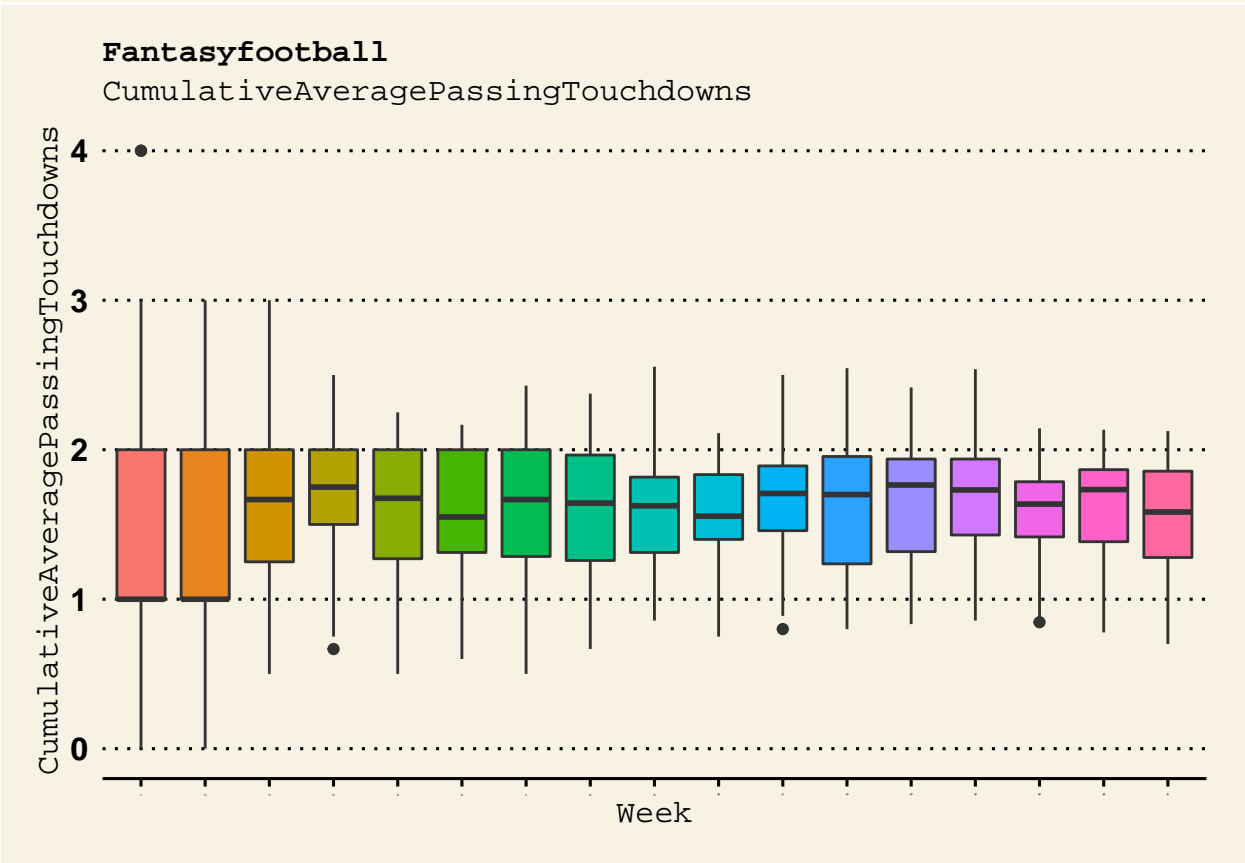
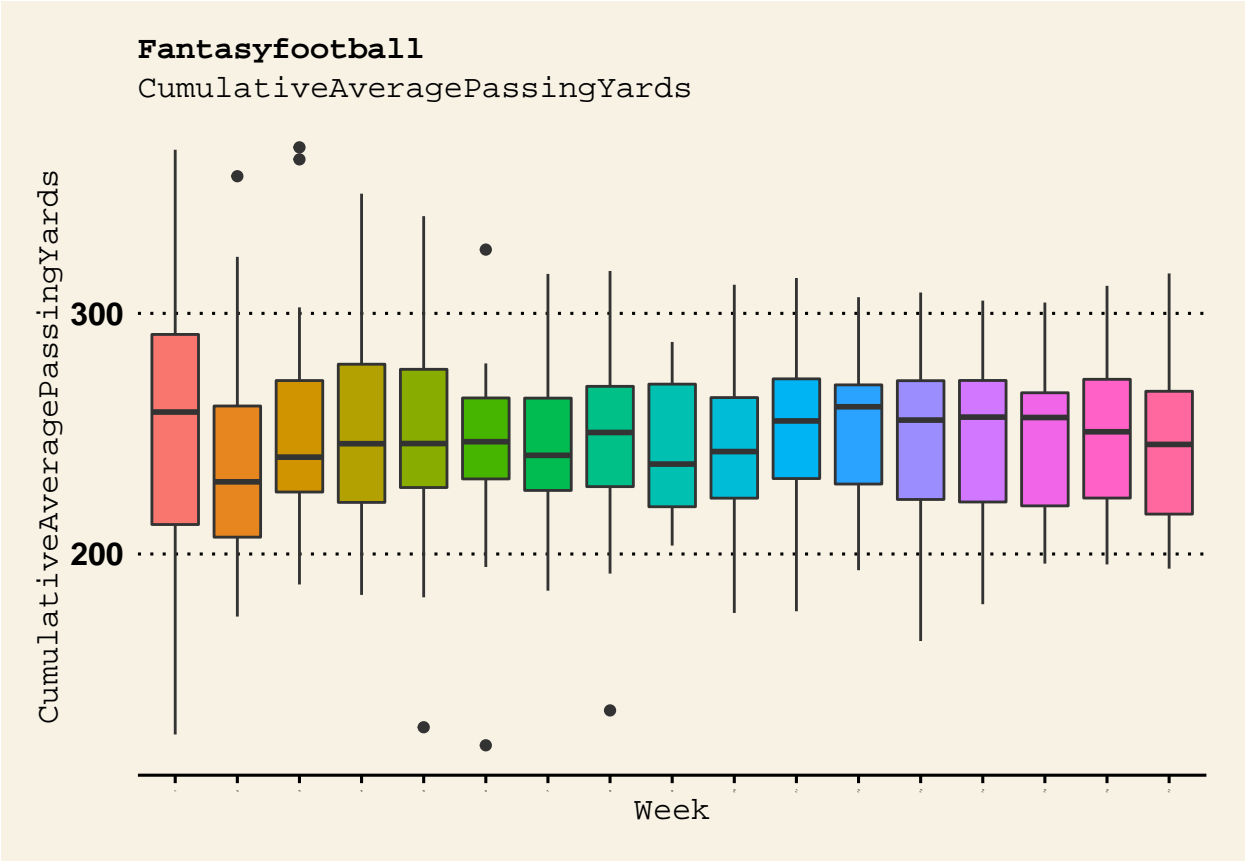
```

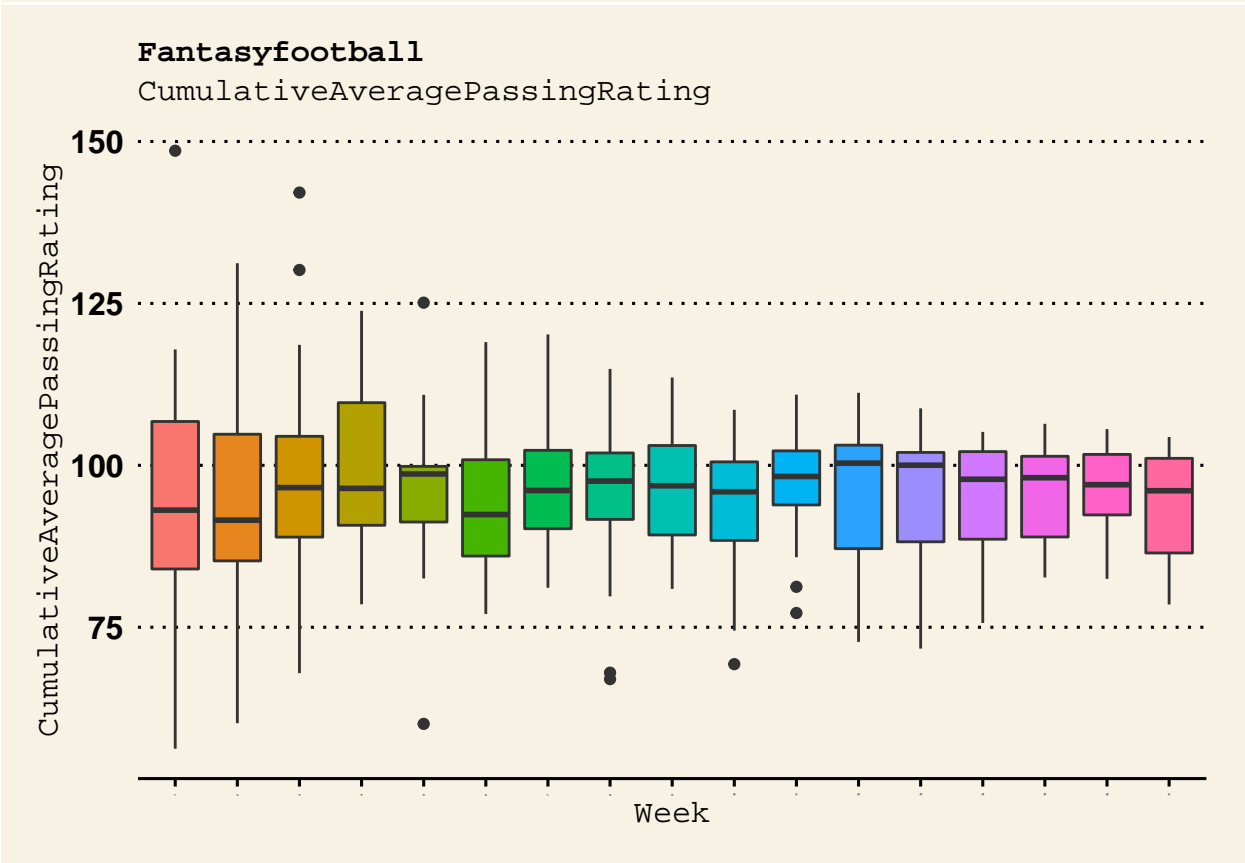
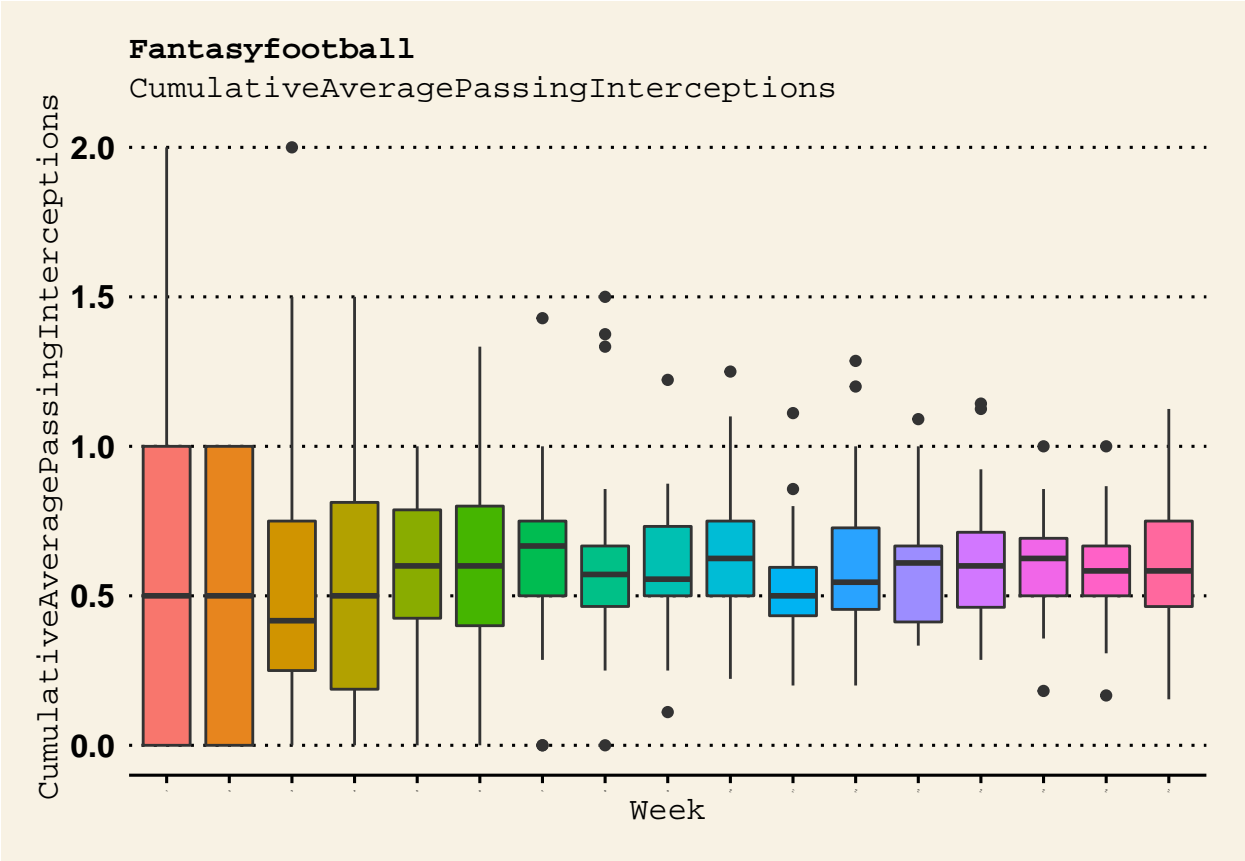
    theme(plot.title      = element_text(size = rel(0.5)),
          plot.subtitle   = element_text(size = rel(0.5)),
          axis.text.x     = element_text(angle=65, vjust=0.6,size=1),
          axis.title       = element_text(size = rel(0.5)),
          legend.position  = "right",
          legend.direction = "vertical",
          legend.title     = element_text(size = rel(0.5)))

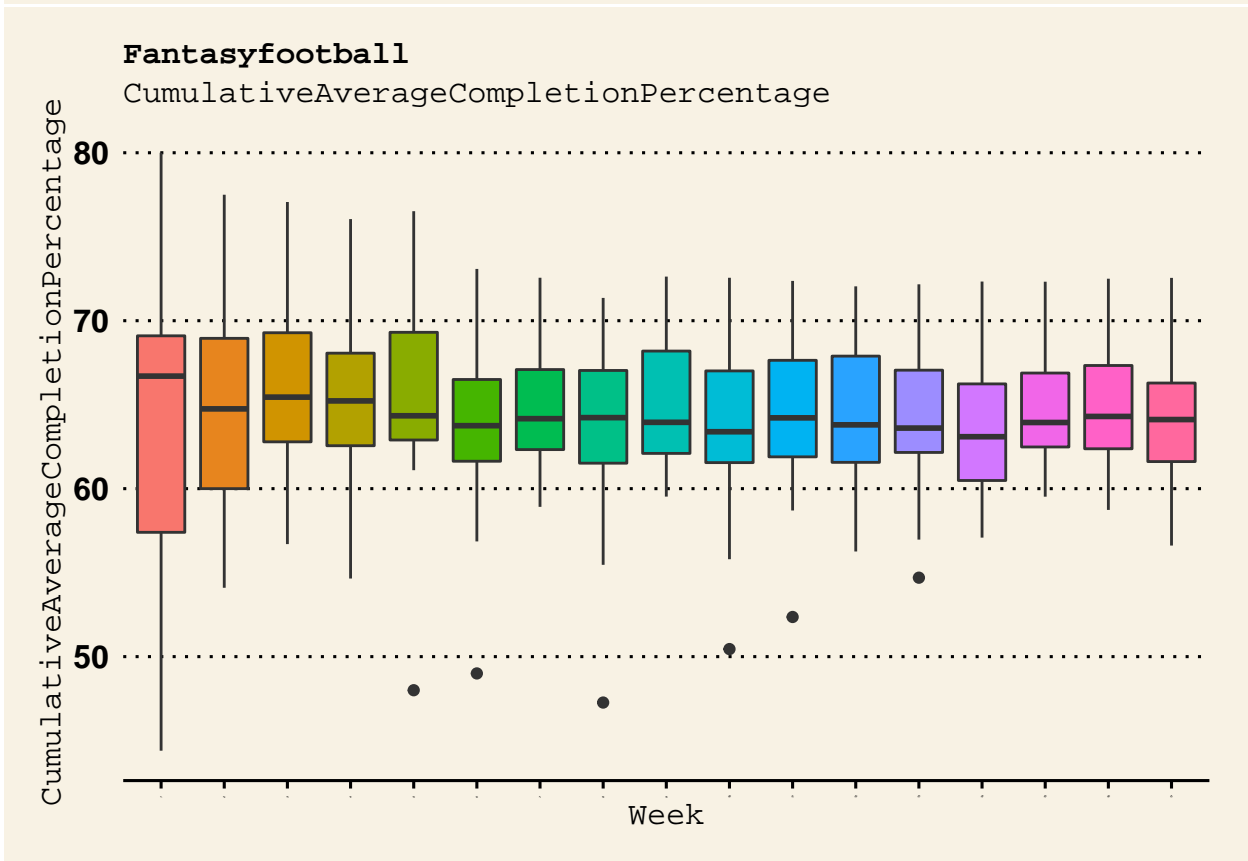
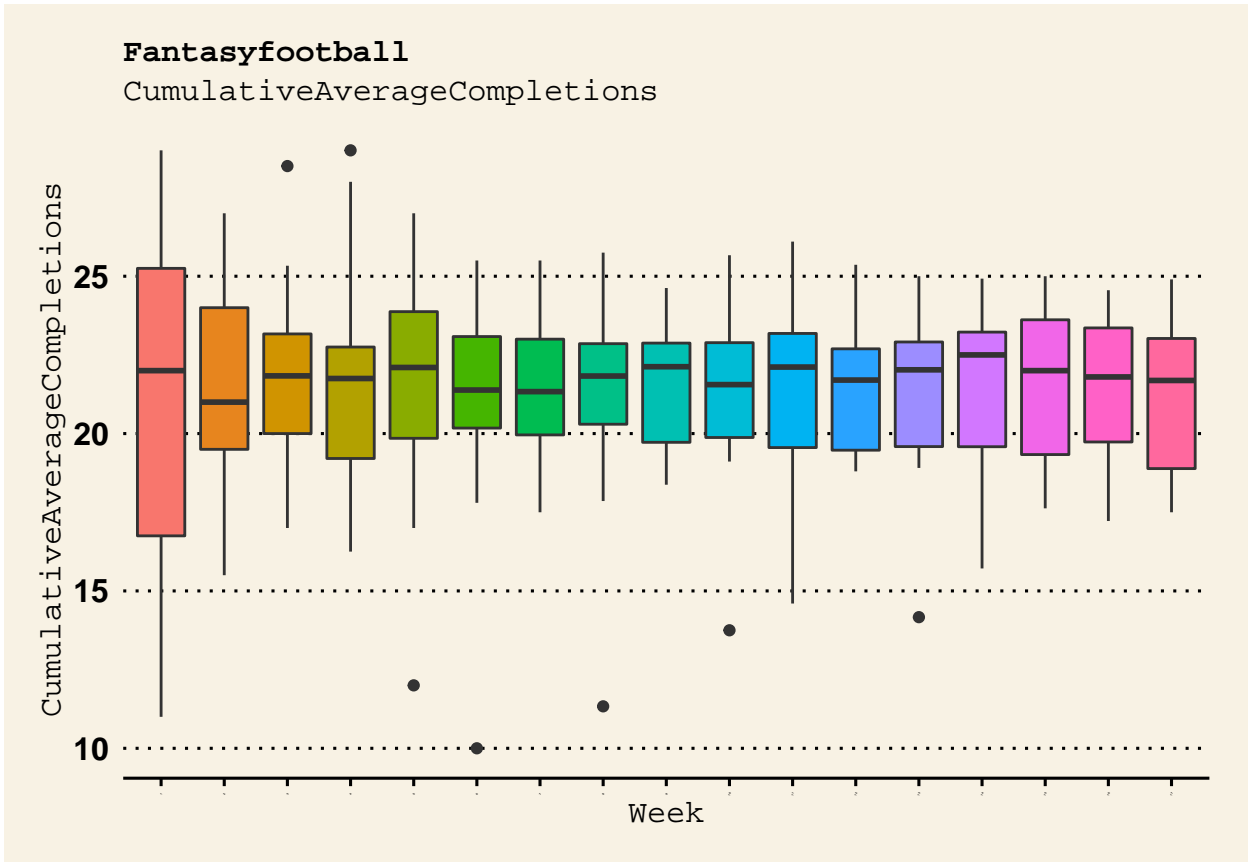
print(ggplotp)
}

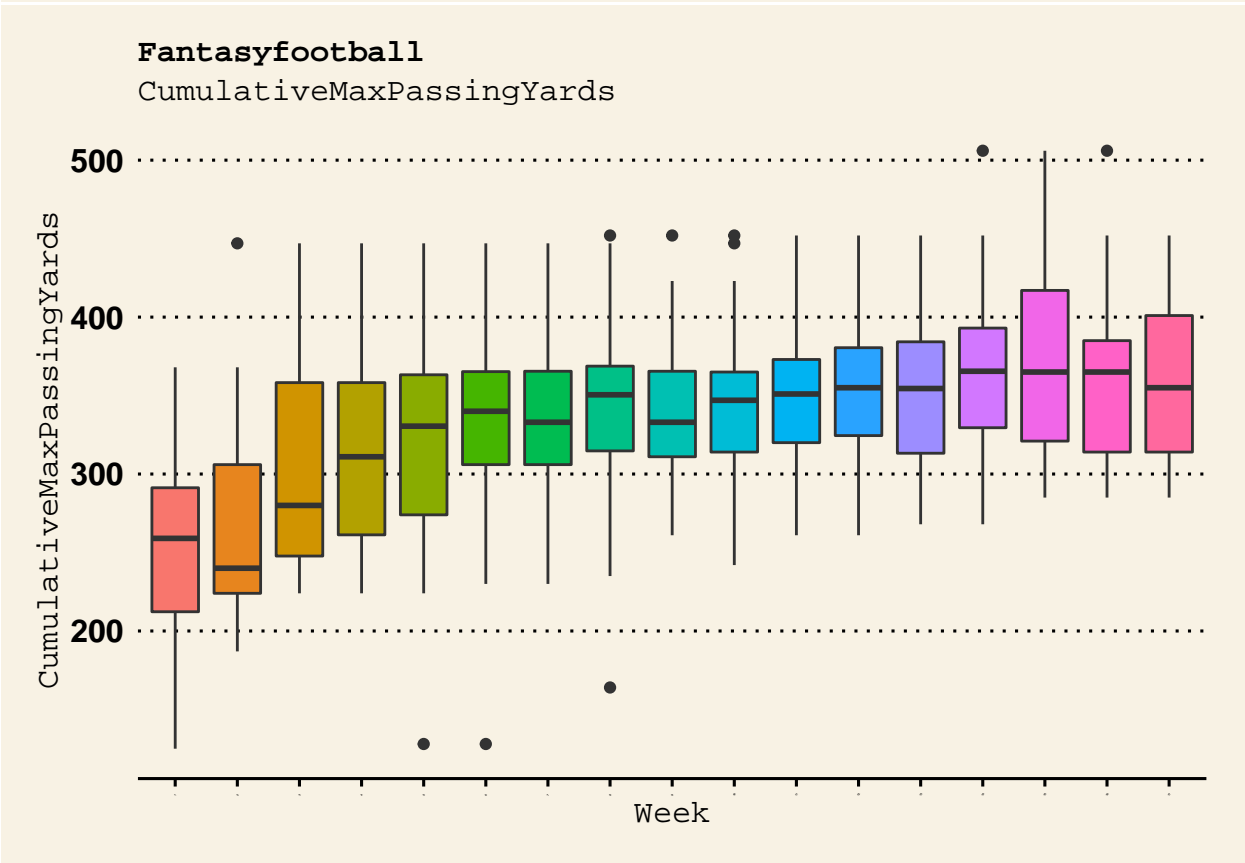
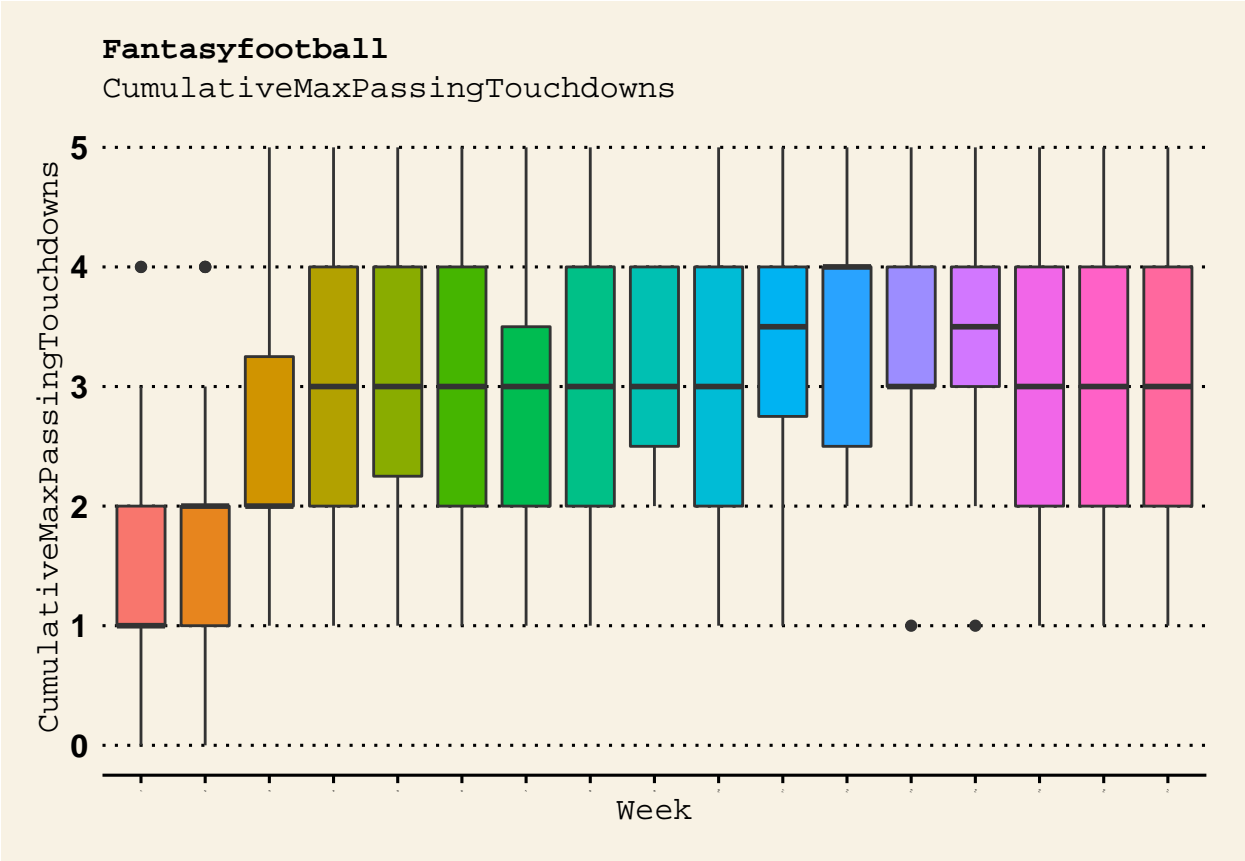
```





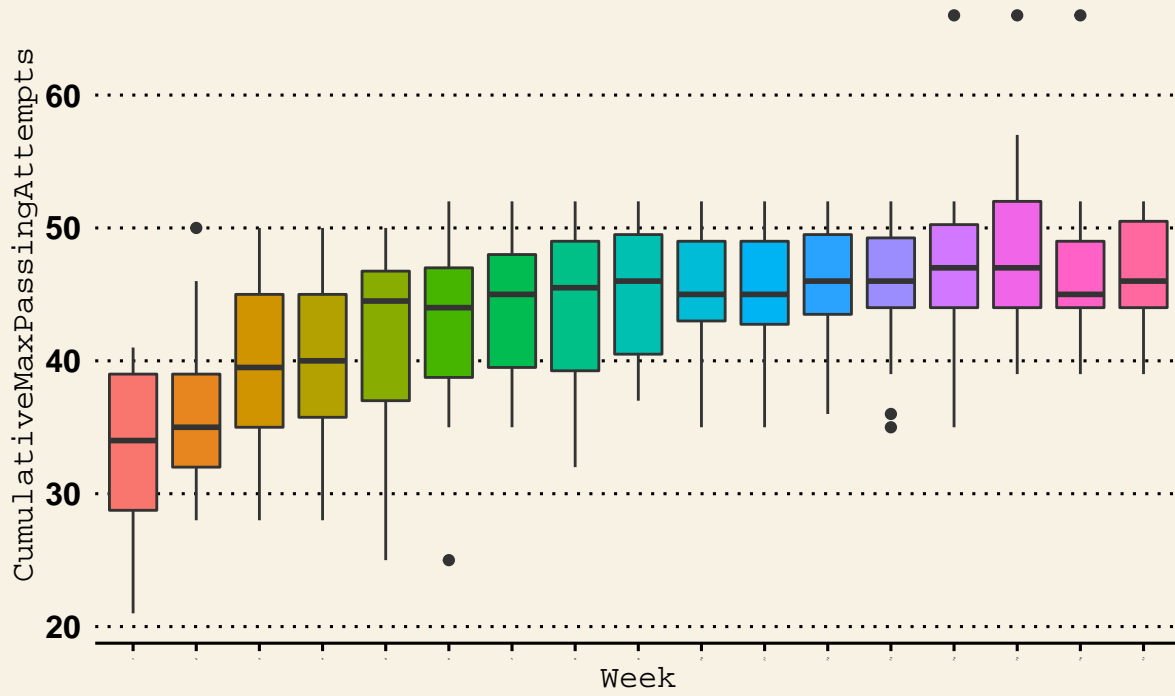






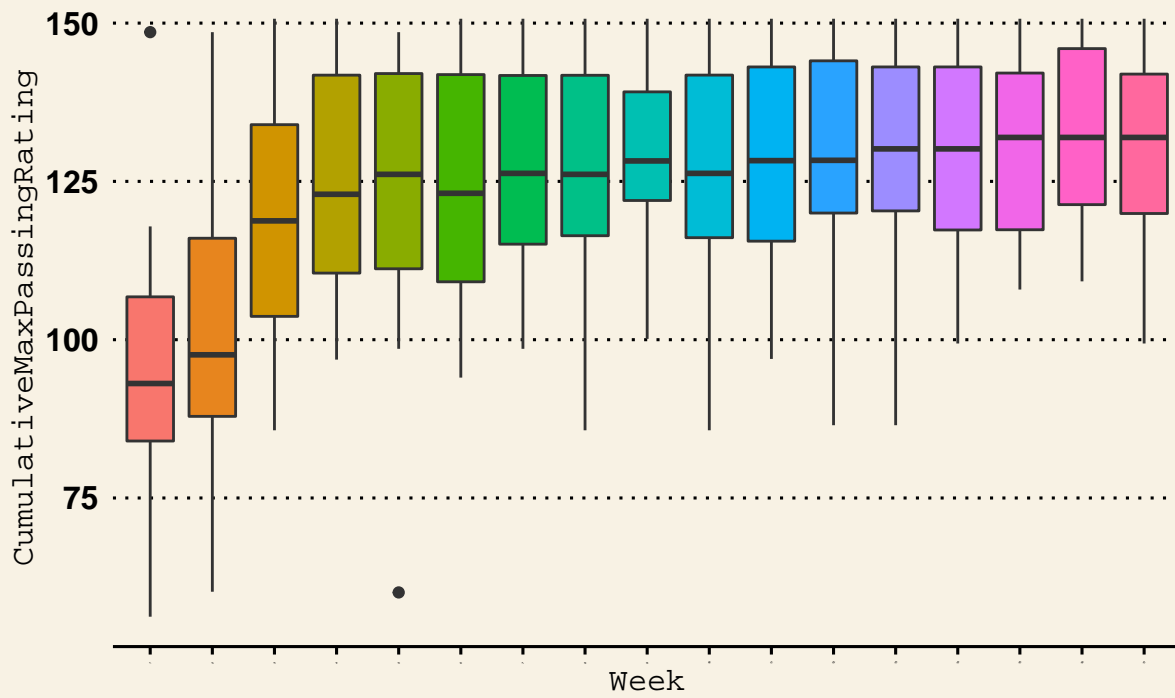
Fantasyfootball

CumulativeMaxPassingAttempts

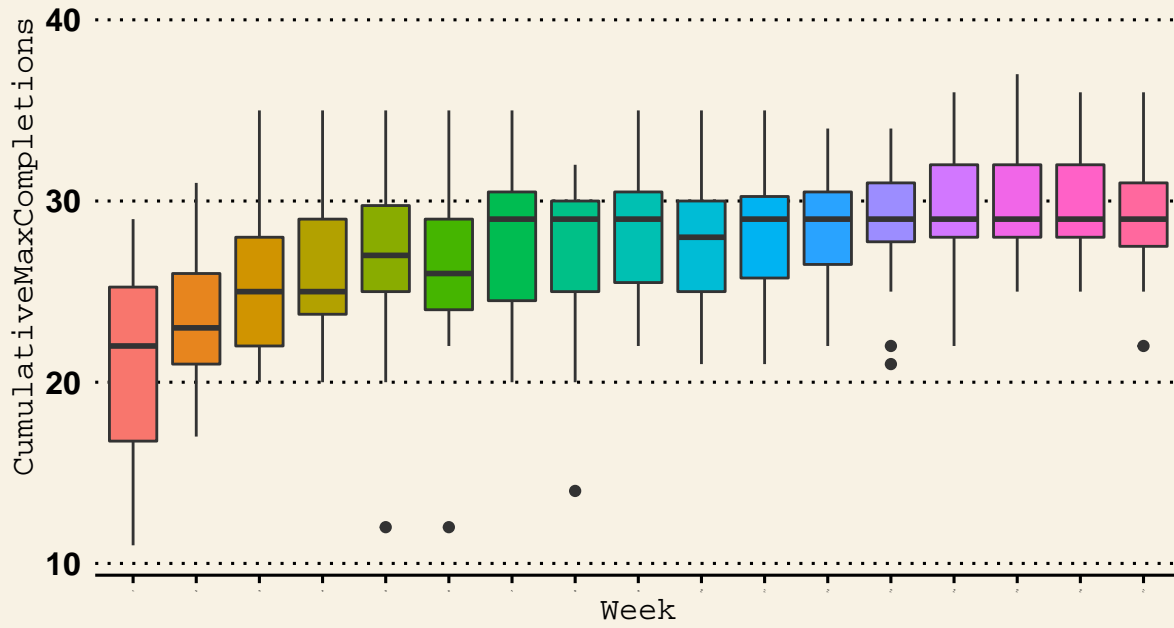


Fantasyfootball

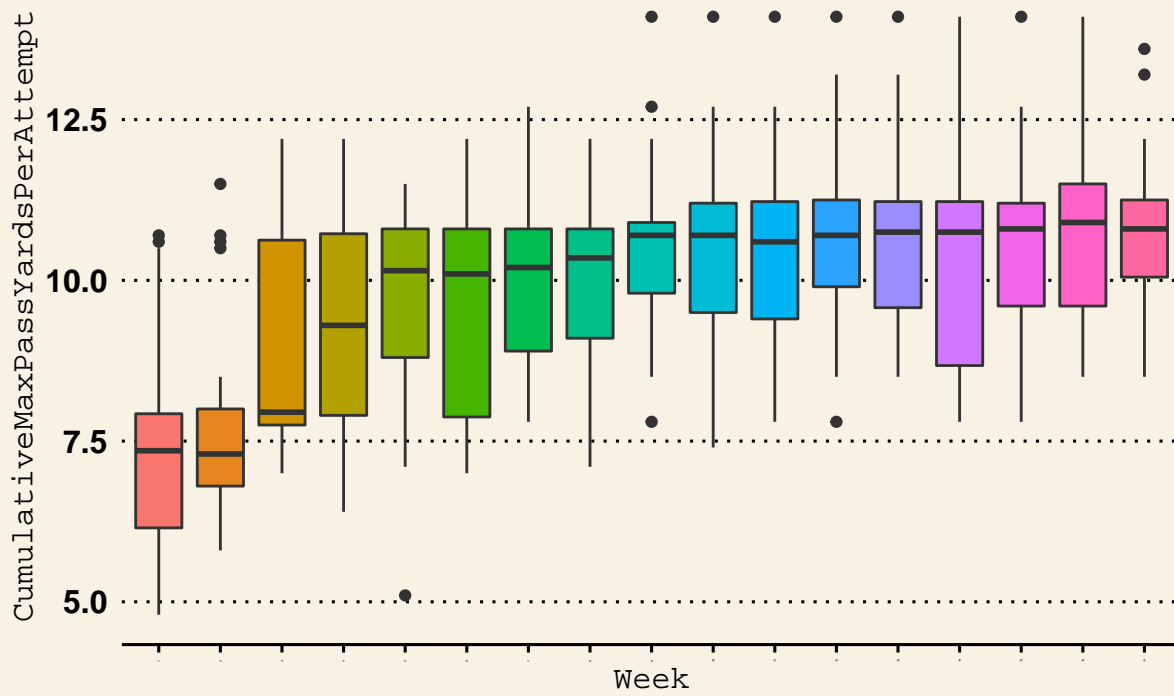
CumulativeMaxPassingRating

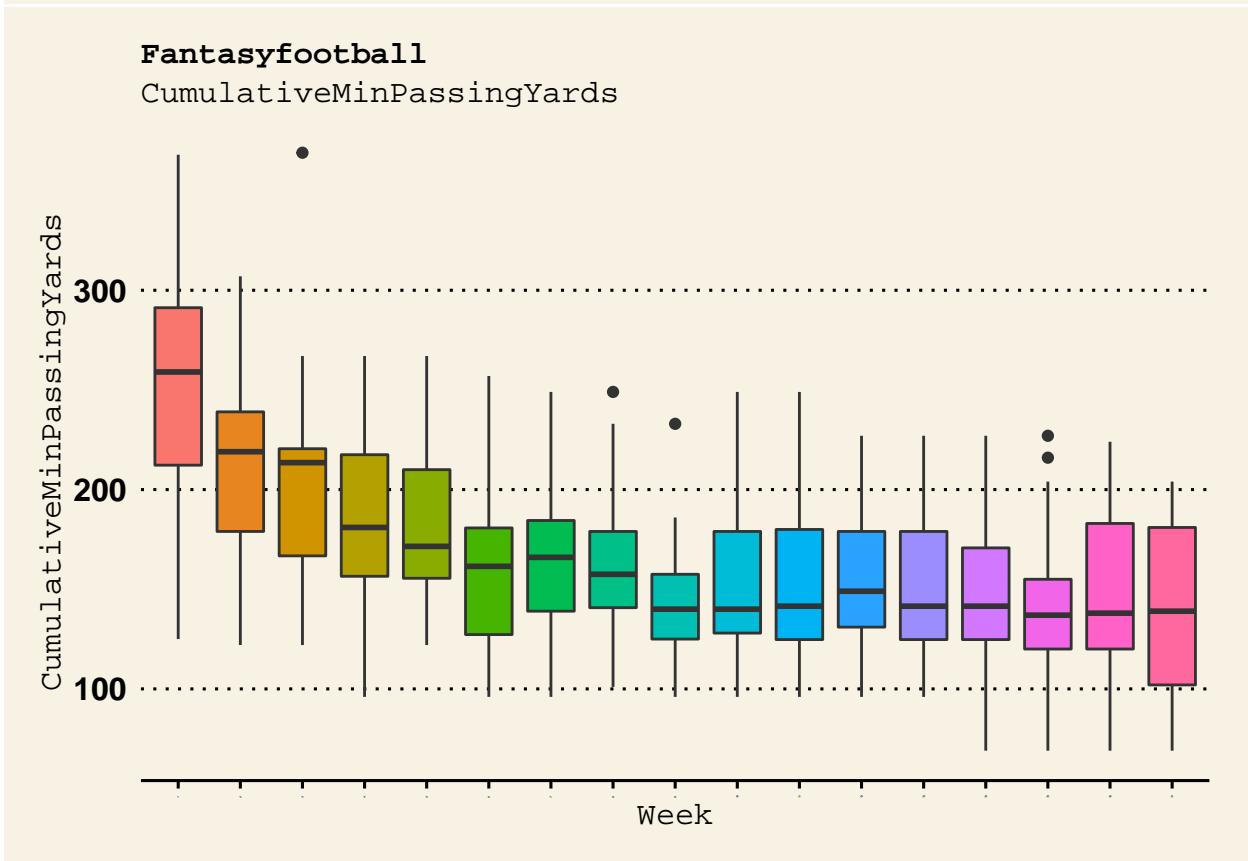
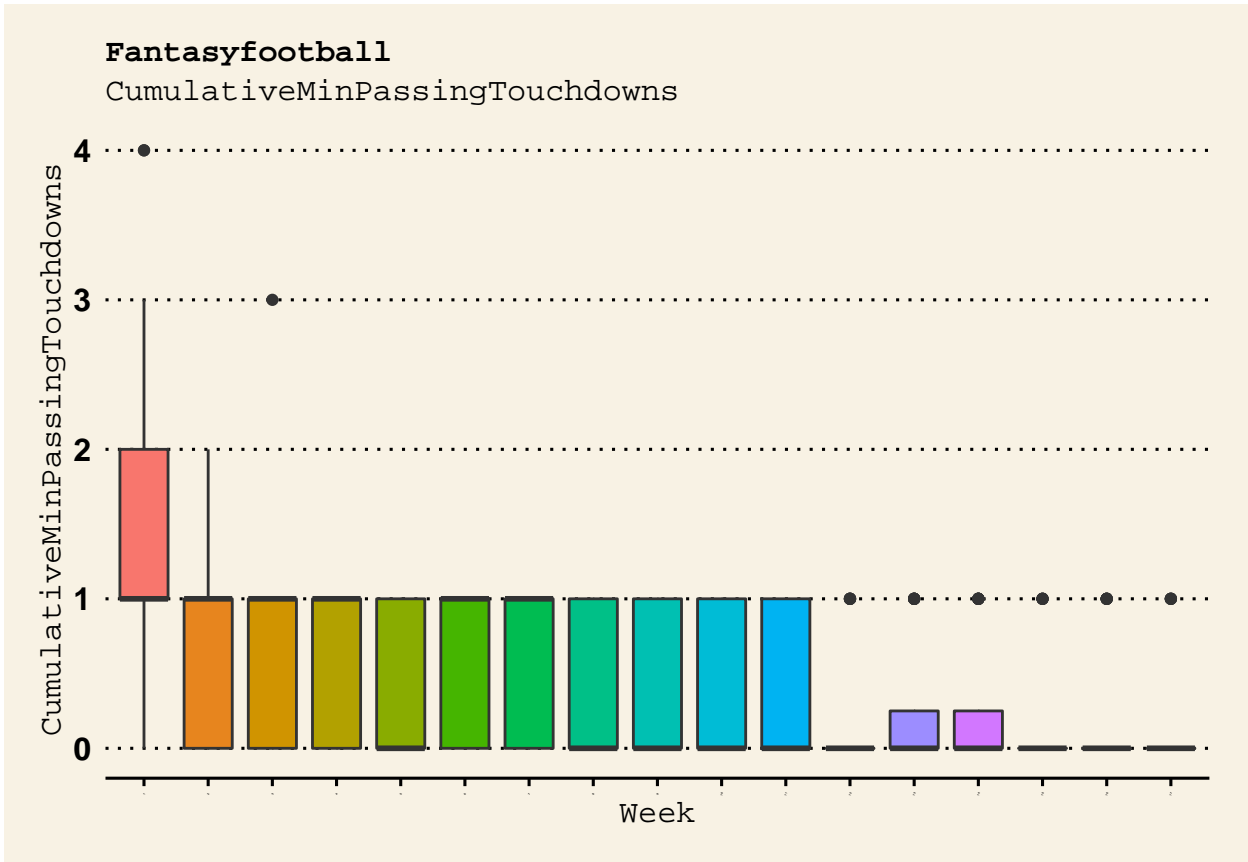


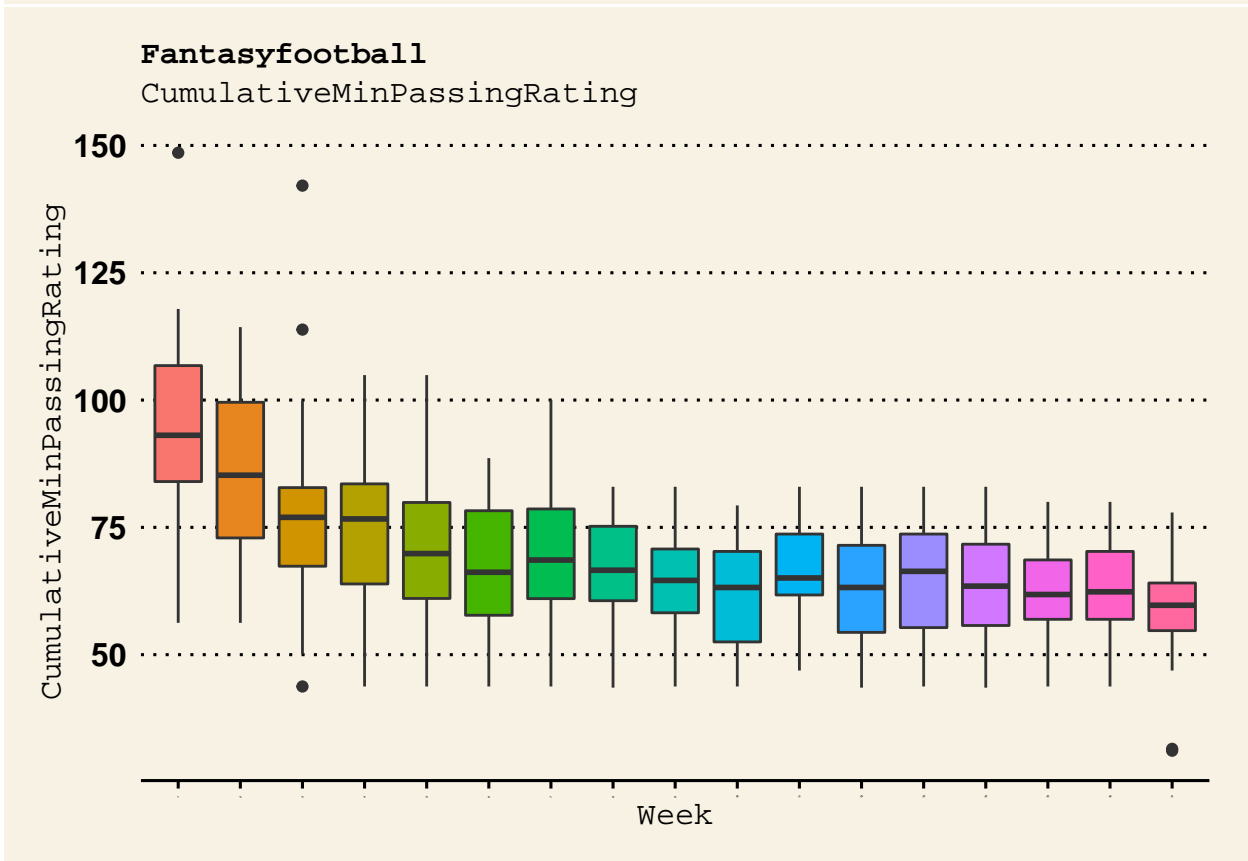
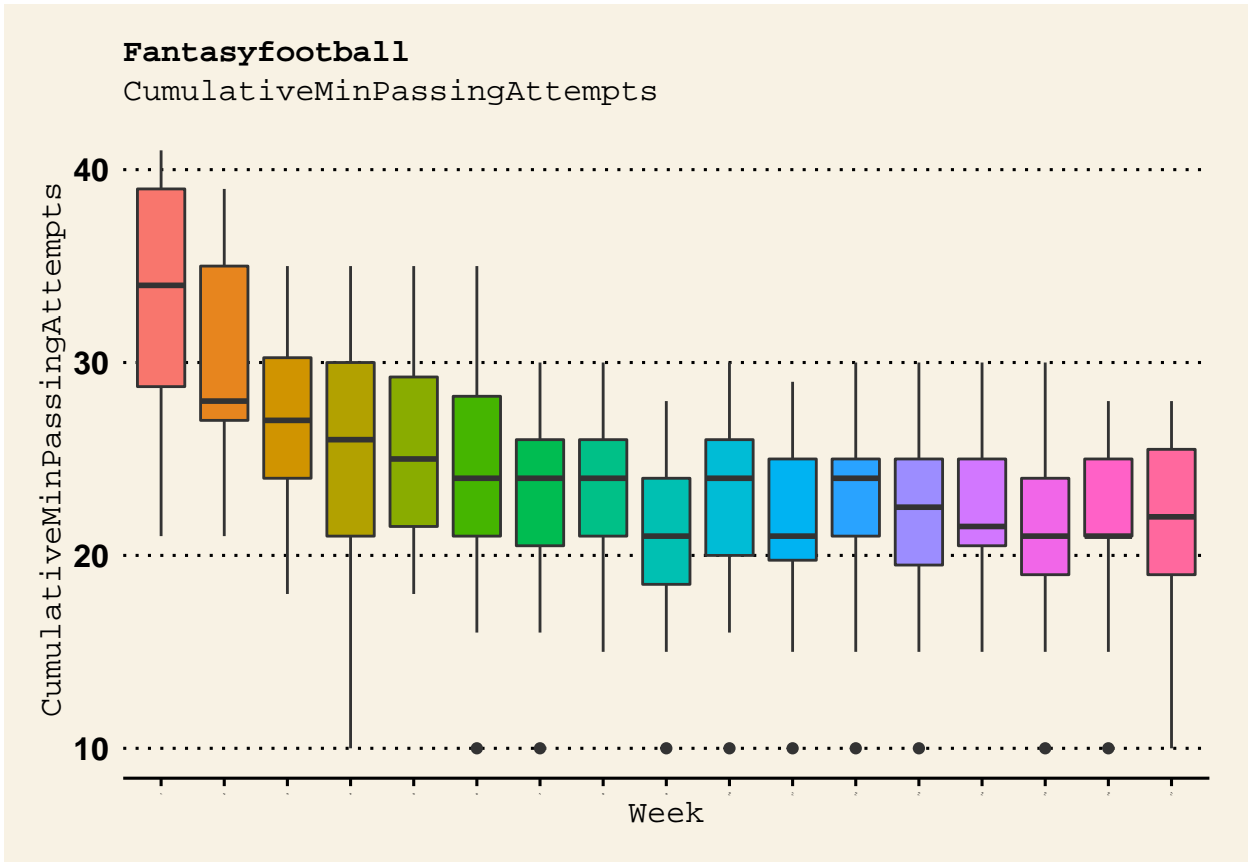
Fantasyfootball
CumulativeMaxCompletions

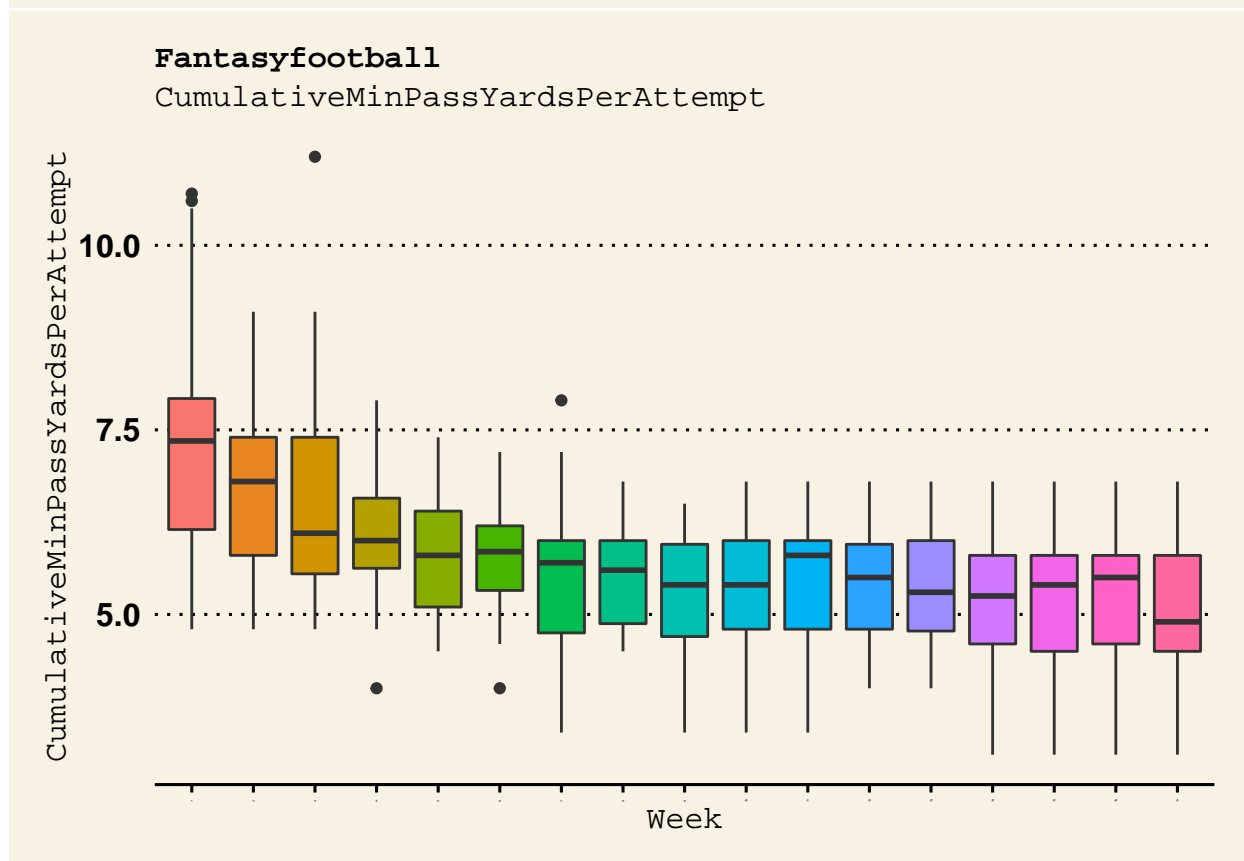
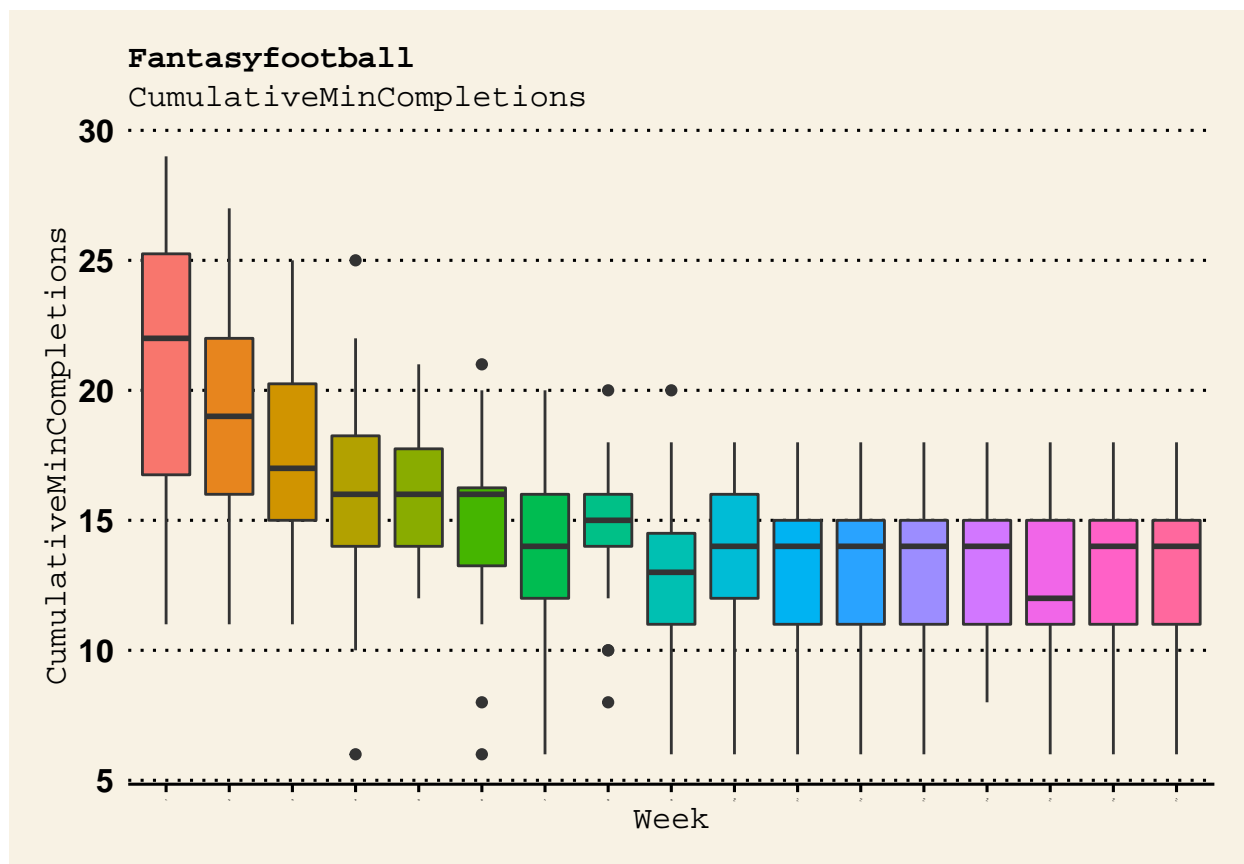


Fantasyfootball
CumulativeMaxPassYardsPerAttempt



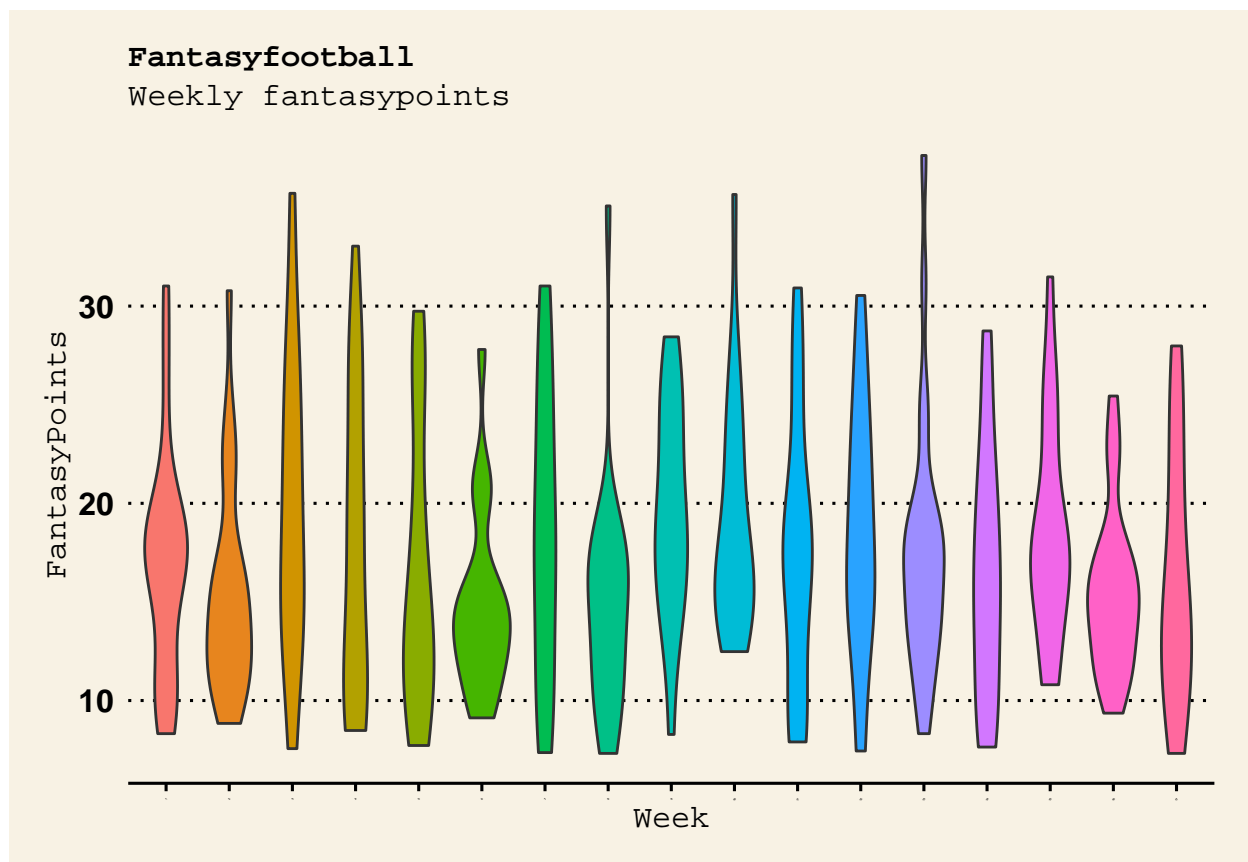






8.3 Violin plots Derived Feature set

```
eda_derived %>% ggplot(aes(y=FantasyPoints,x=Week,fill=Week,group=Week))+
  geom_violin(show.legend = FALSE)+
  xlab("Week")+ylab("FantasyPoints")+
  labs(title="Fantasyfootball",
        subtitle="Weekly fantasypoints",
        aption="Source: Fantasyfootball")+
  theme_ws() +
  theme(plot.title = element_text(size = rel(0.5)),
        plot.subtitle = element_text(size = rel(0.5)),
        axis.text.x = element_text(angle=65, vjust=0.6,size=1),
        axis.title = element_text(size = rel(0.5)),
        legend.position = "right",
        legend.direction = "vertical",
        legend.title = element_text(size = rel(0.5)))
```



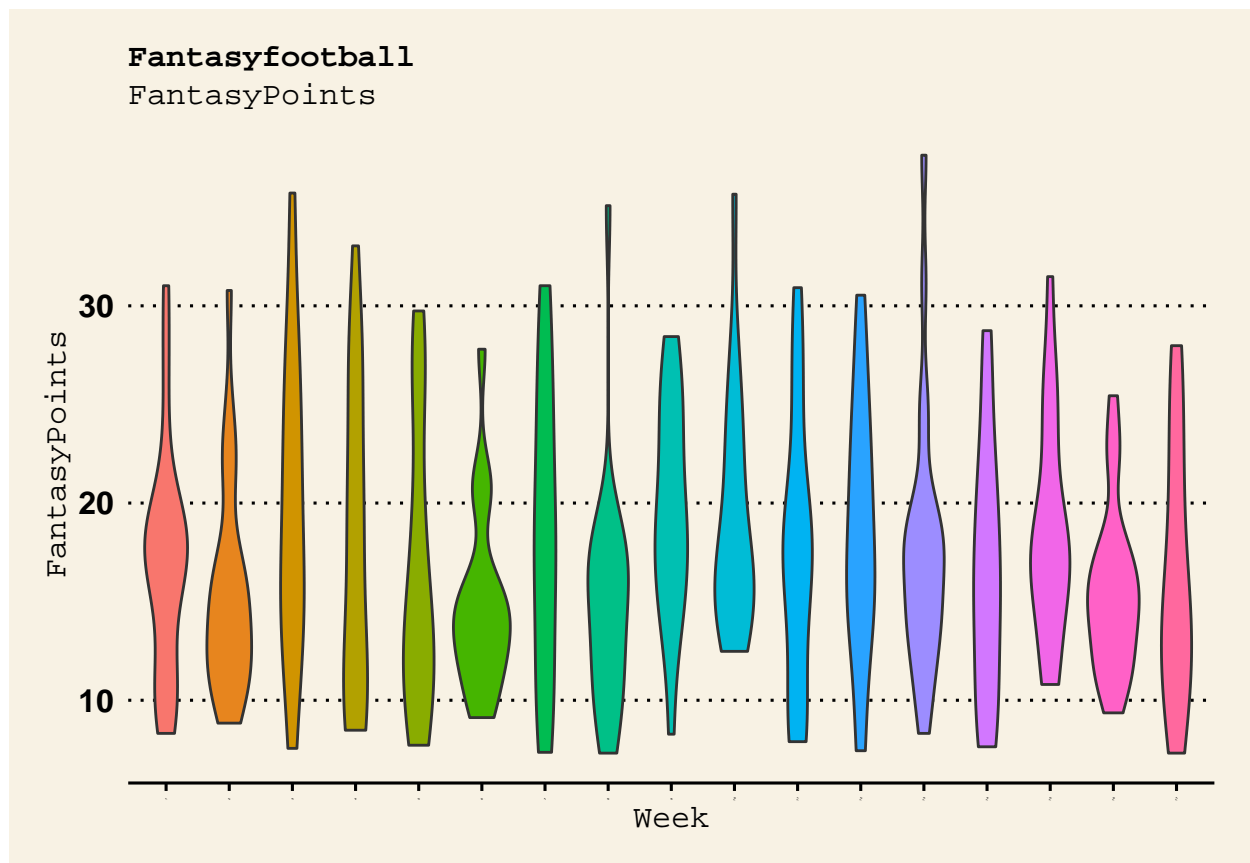
```
for (i in 2:20) {
  ggplotp <- eda_derived %>%
    ggplot(aes_string(y=names(eda_derived[i]),x="Week",fill="Week",group="Week"))+
    geom_violin(show.legend = FALSE)+
    xlab("Week")+ylab(names(eda_derived[i]))+
    labs(title="Fantasyfootball",
          subtitle=names(eda_derived[i]),
          aption="Source: Fantasyfootball")+
    theme_ws() +
  }
```

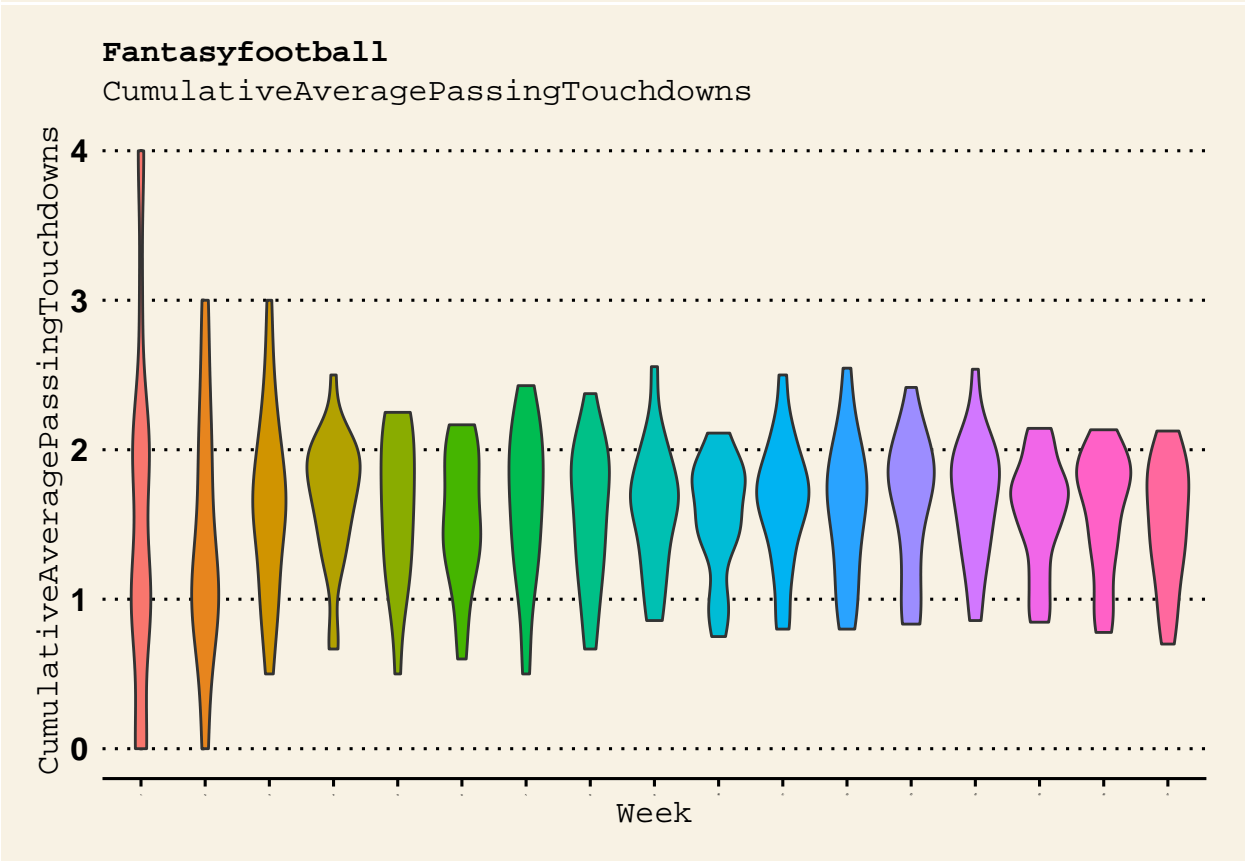
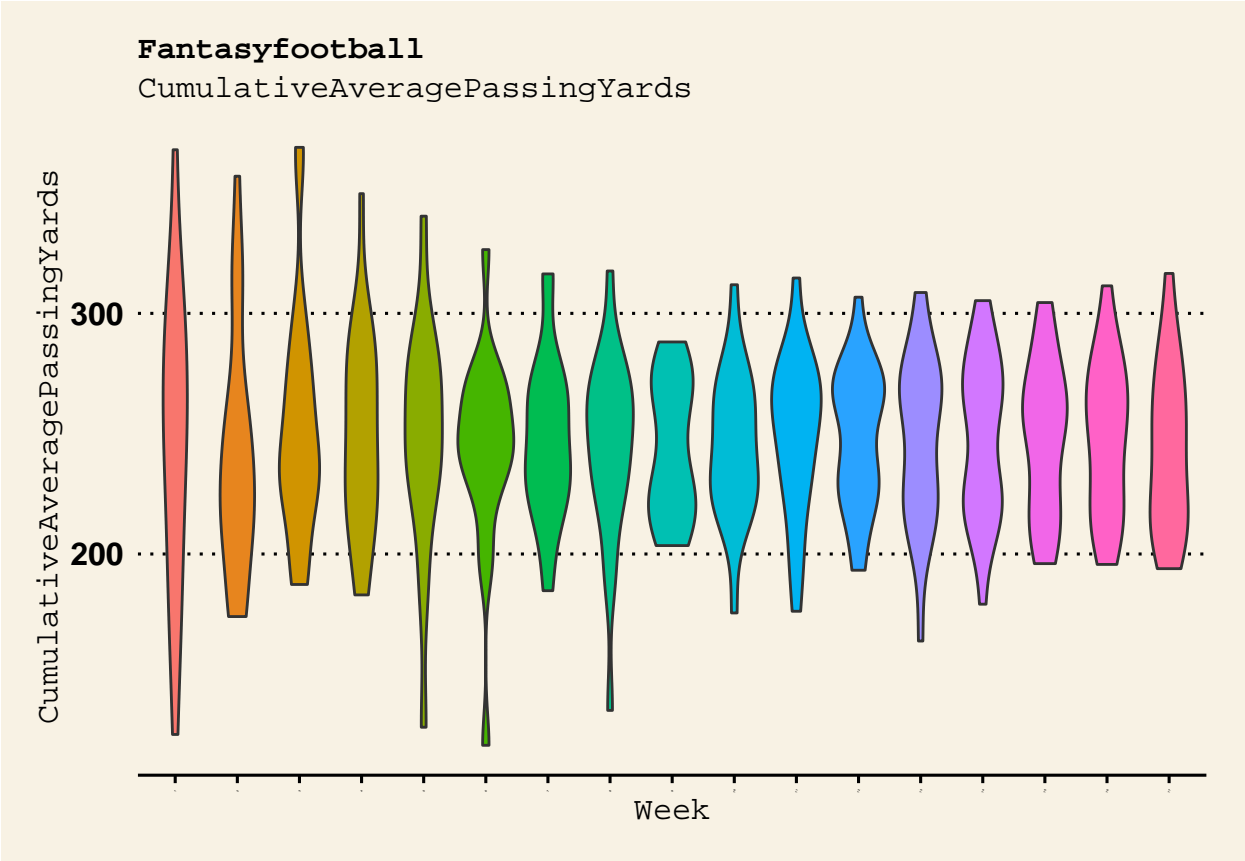
```

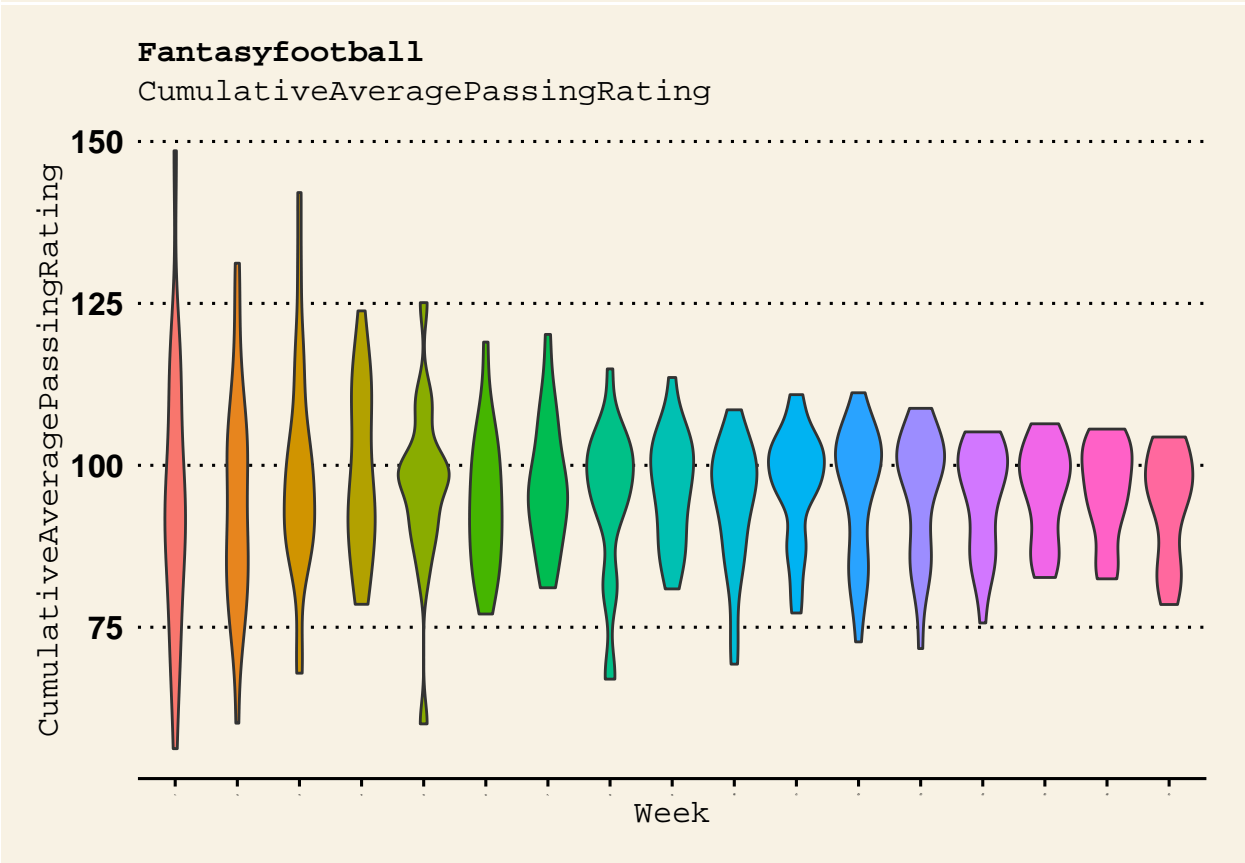
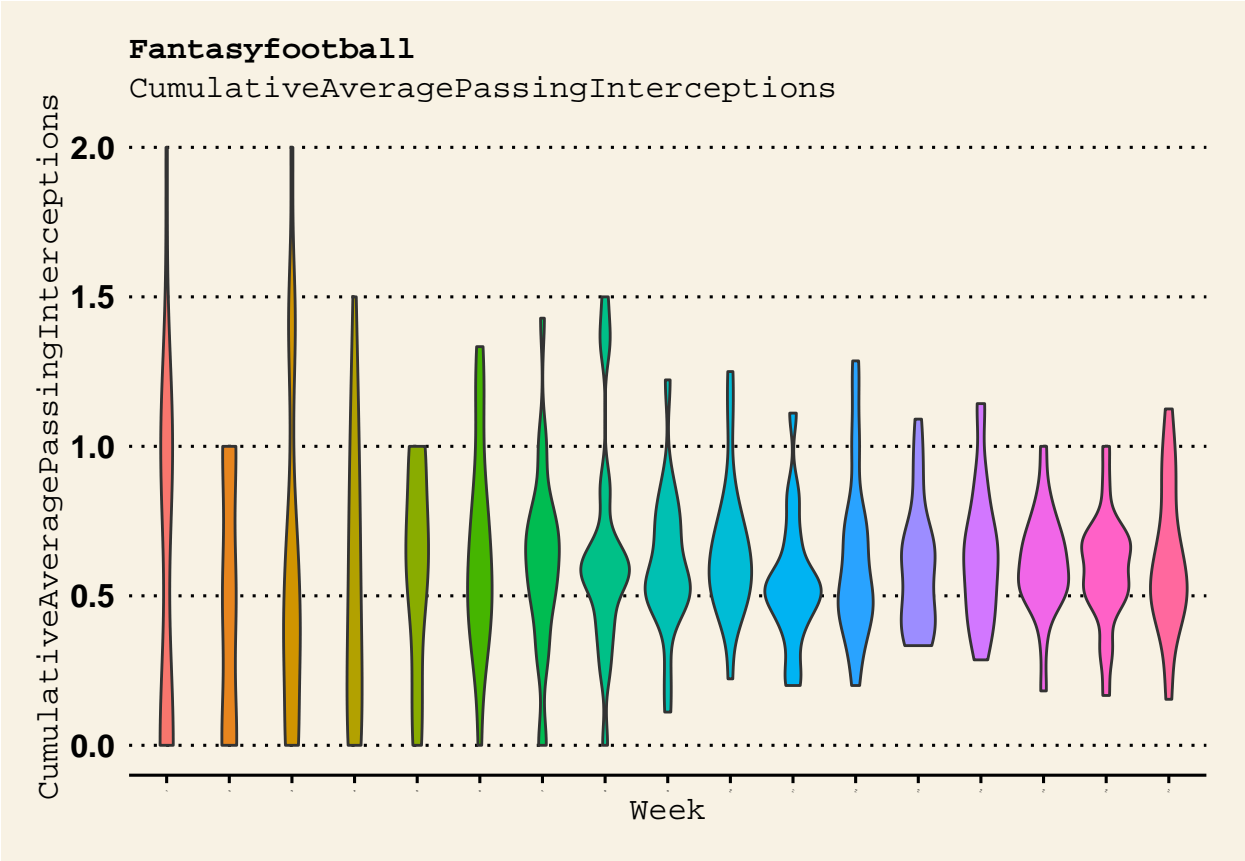
    theme(plot.title      = element_text(size = rel(0.5)),
          plot.subtitle   = element_text(size = rel(0.5)),
          axis.text.x     = element_text(angle=65, vjust=0.6,size=1),
          axis.title       = element_text(size = rel(0.5)),
          legend.position  = "right",
          legend.direction = "vertical",
          legend.title     = element_text(size = rel(0.5)))

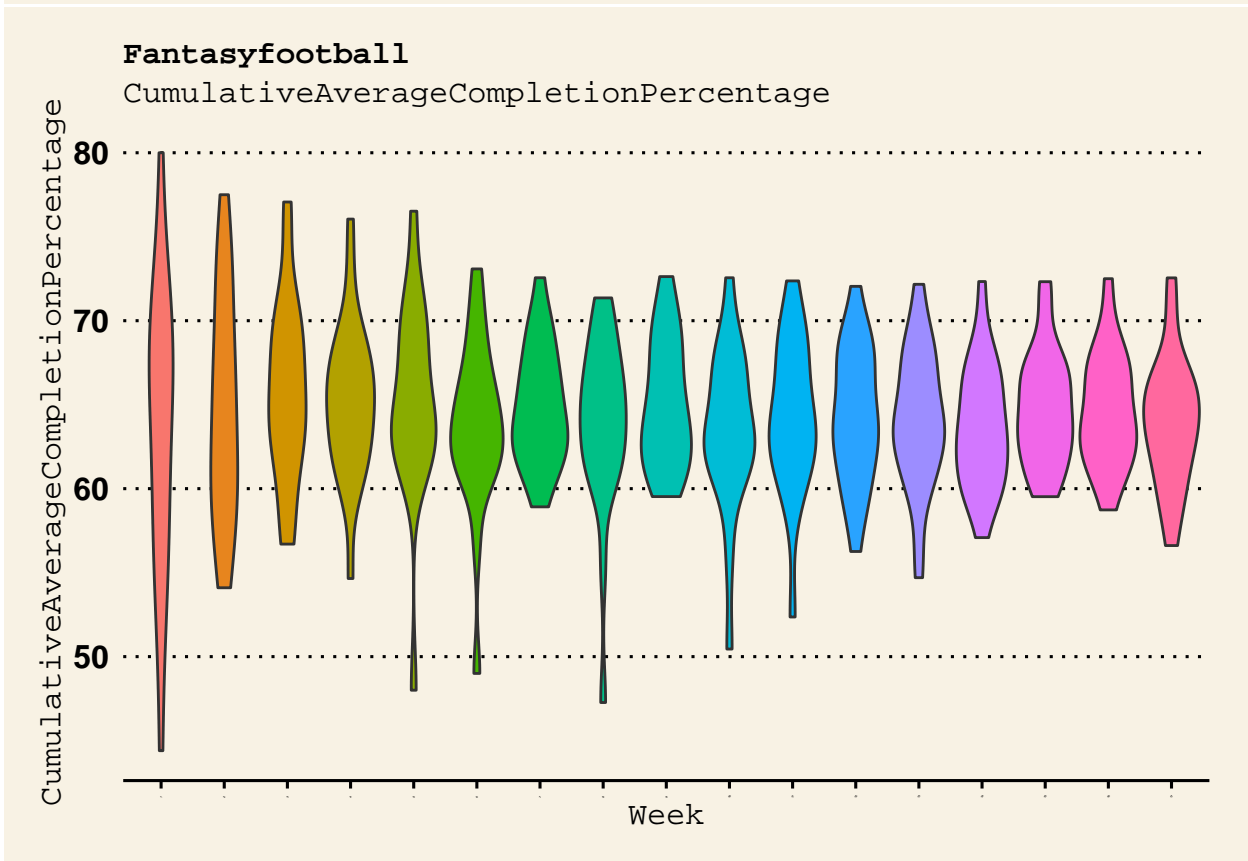
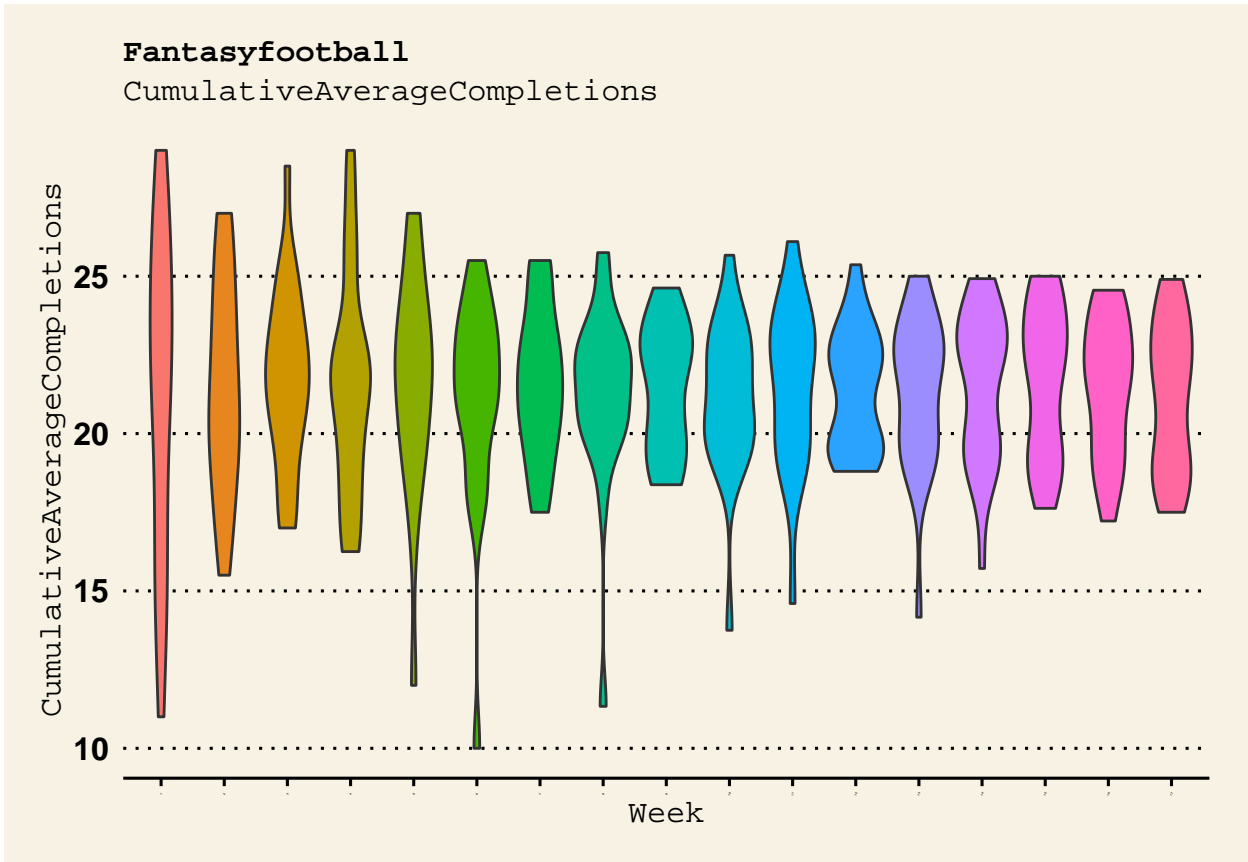
    print(ggplotp)
  }

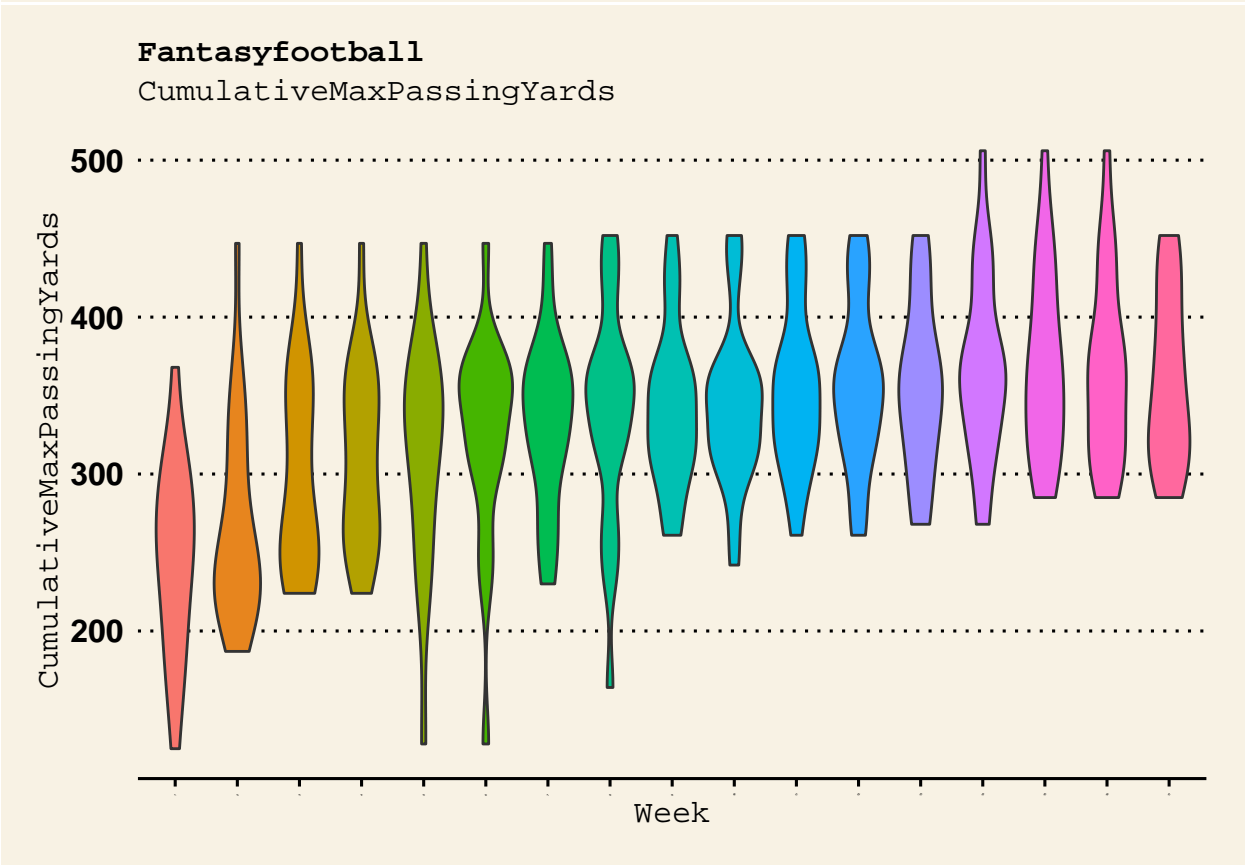
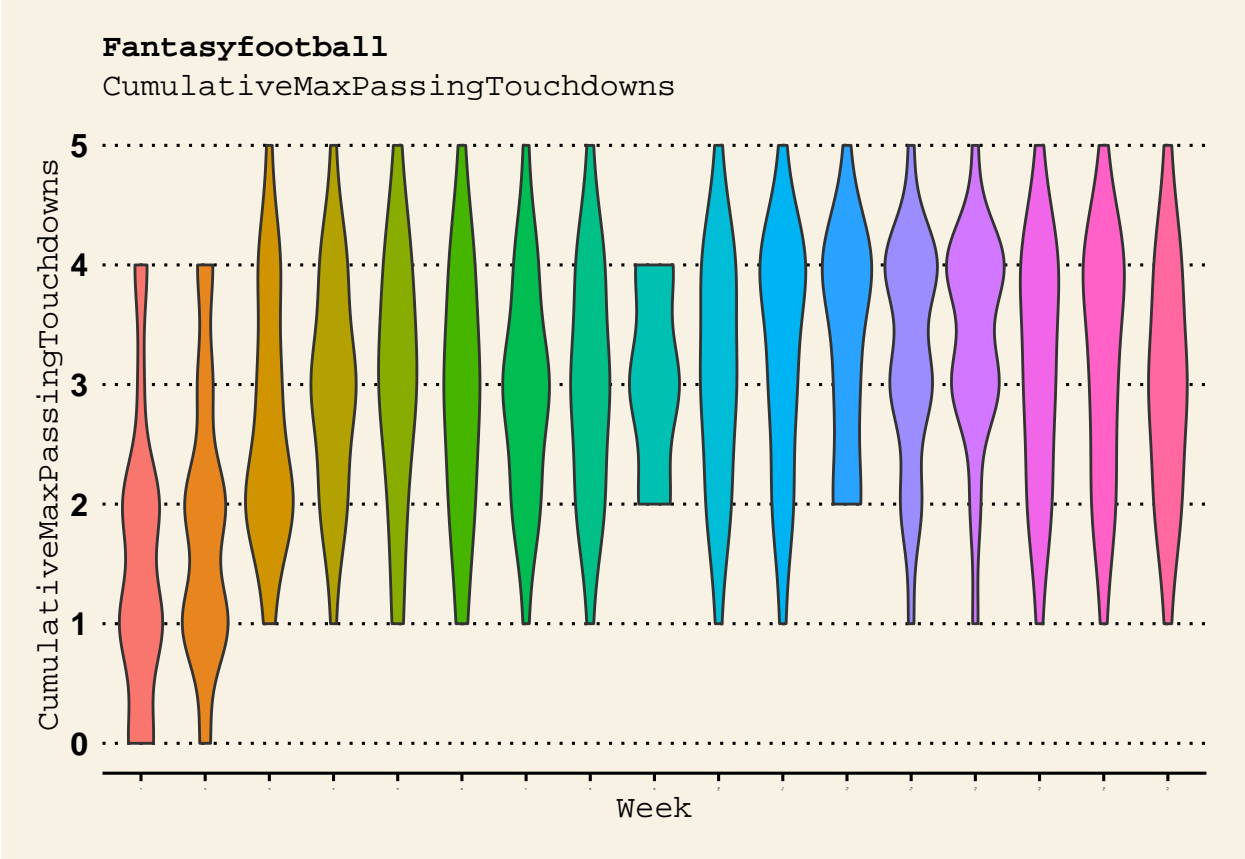
```

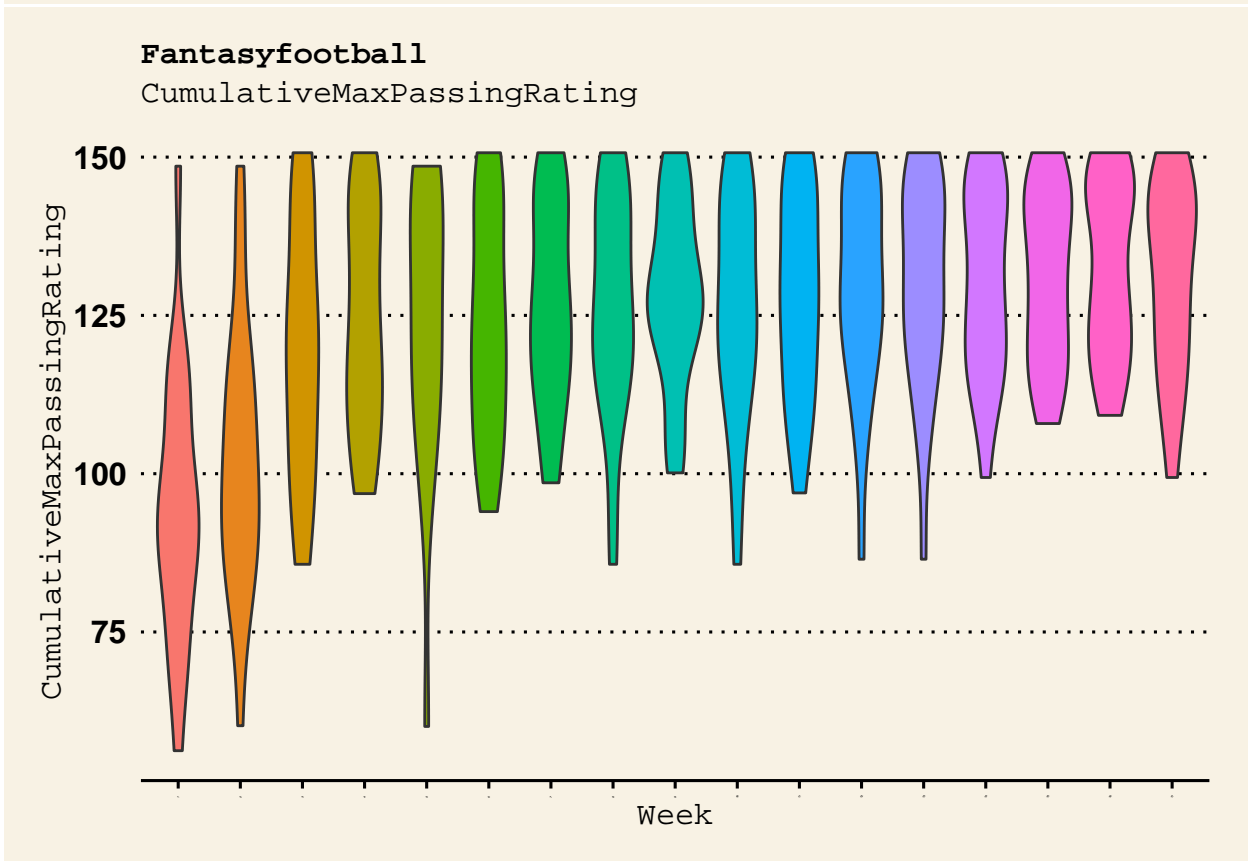
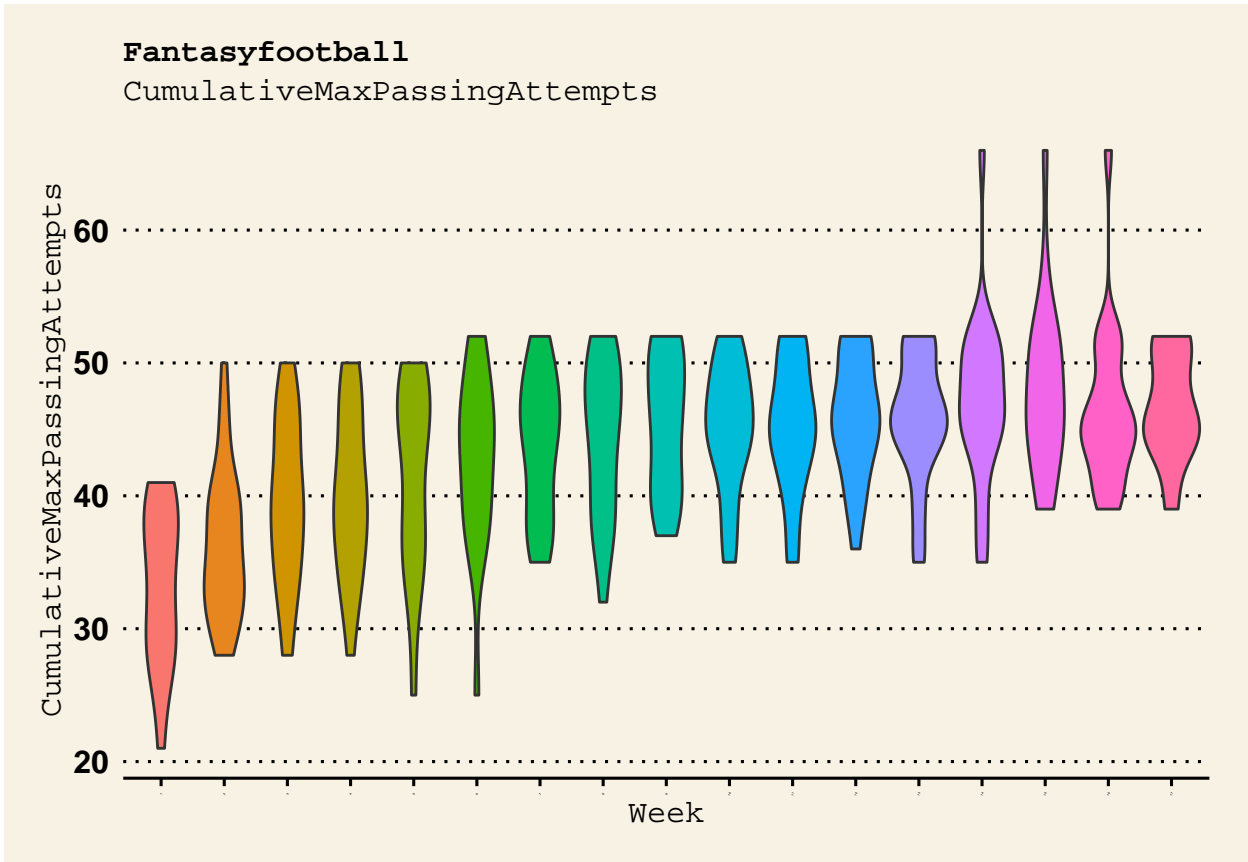




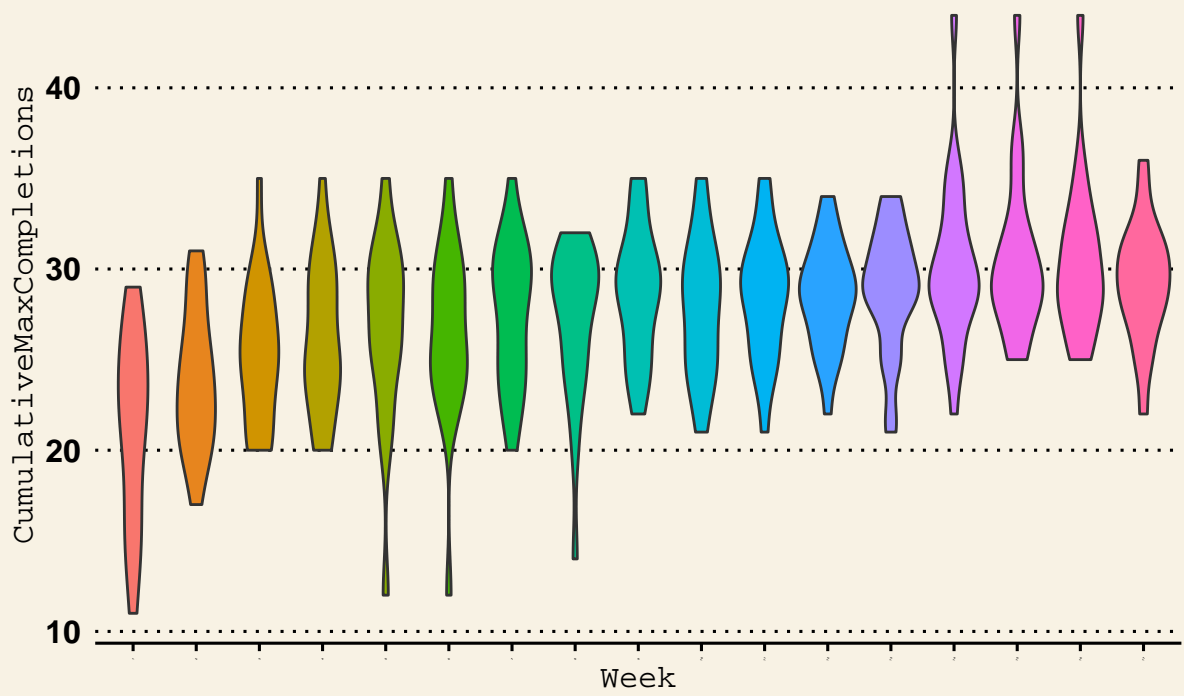




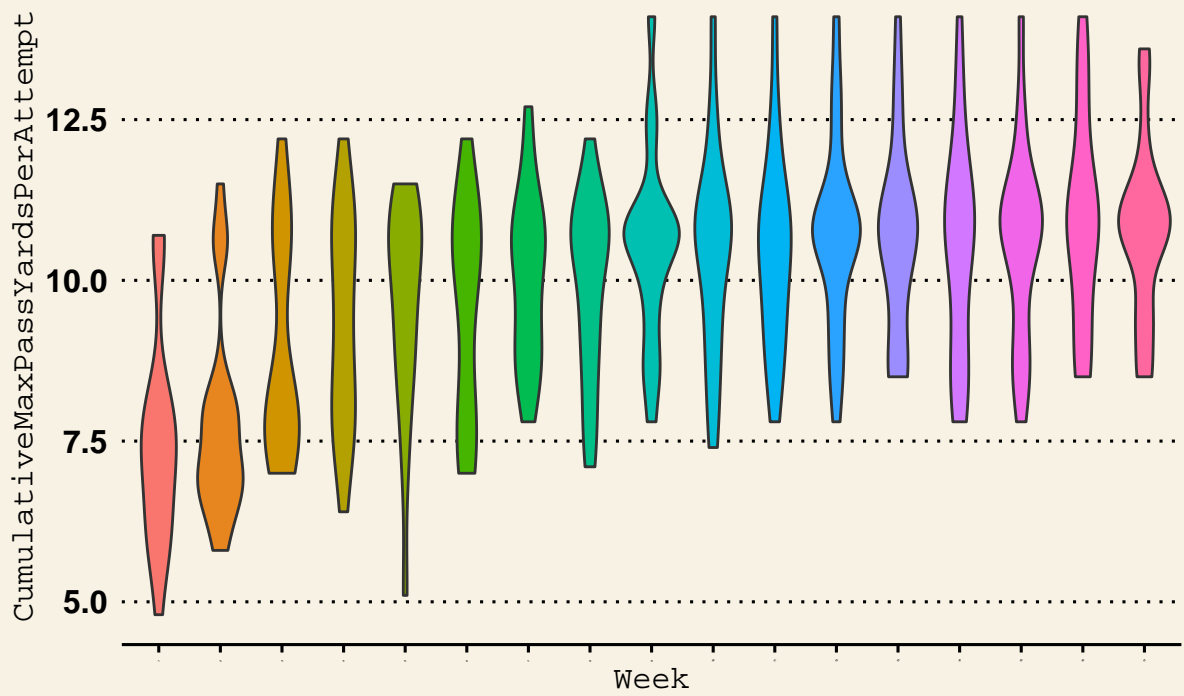




Fantasyfootball
CumulativeMaxCompletions

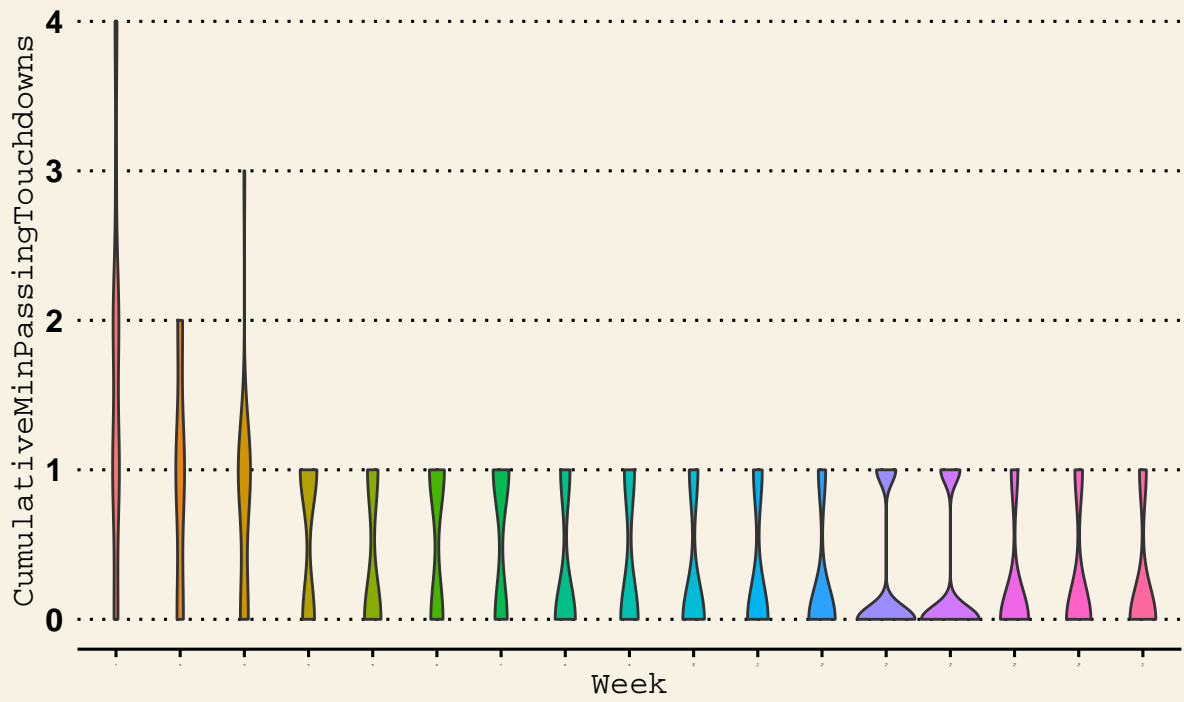


Fantasyfootball
CumulativeMaxPassYardsPerAttempt



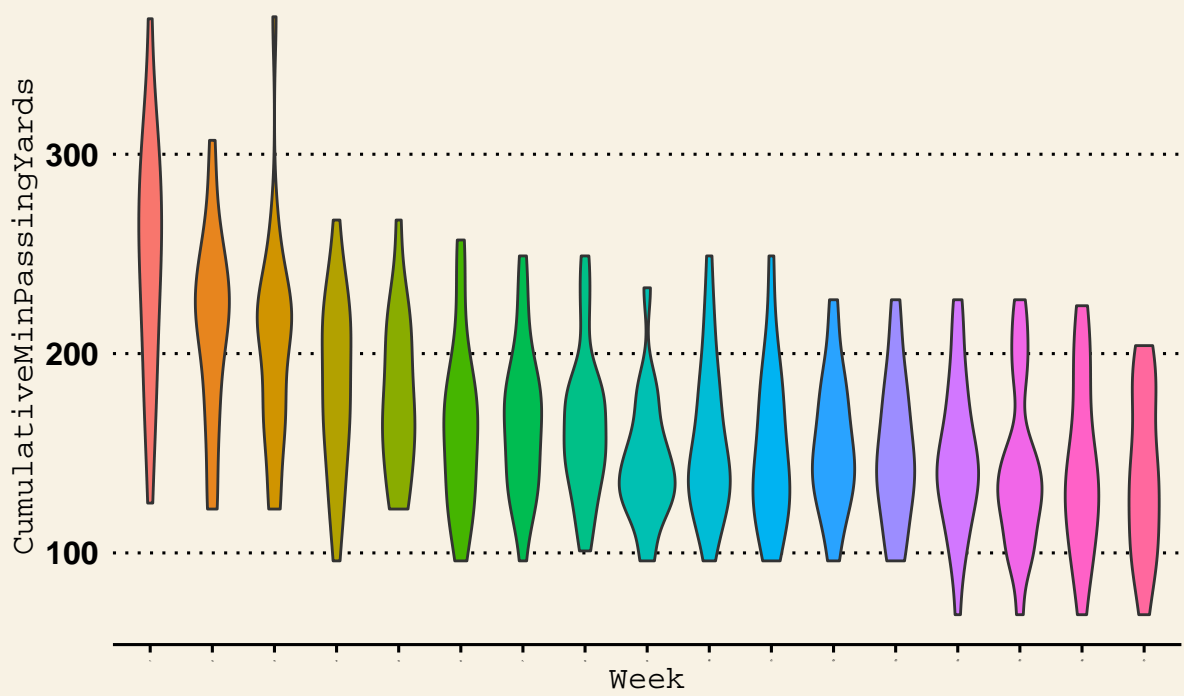
Fantasyfootball

CumulativeMinPassingTouchdowns



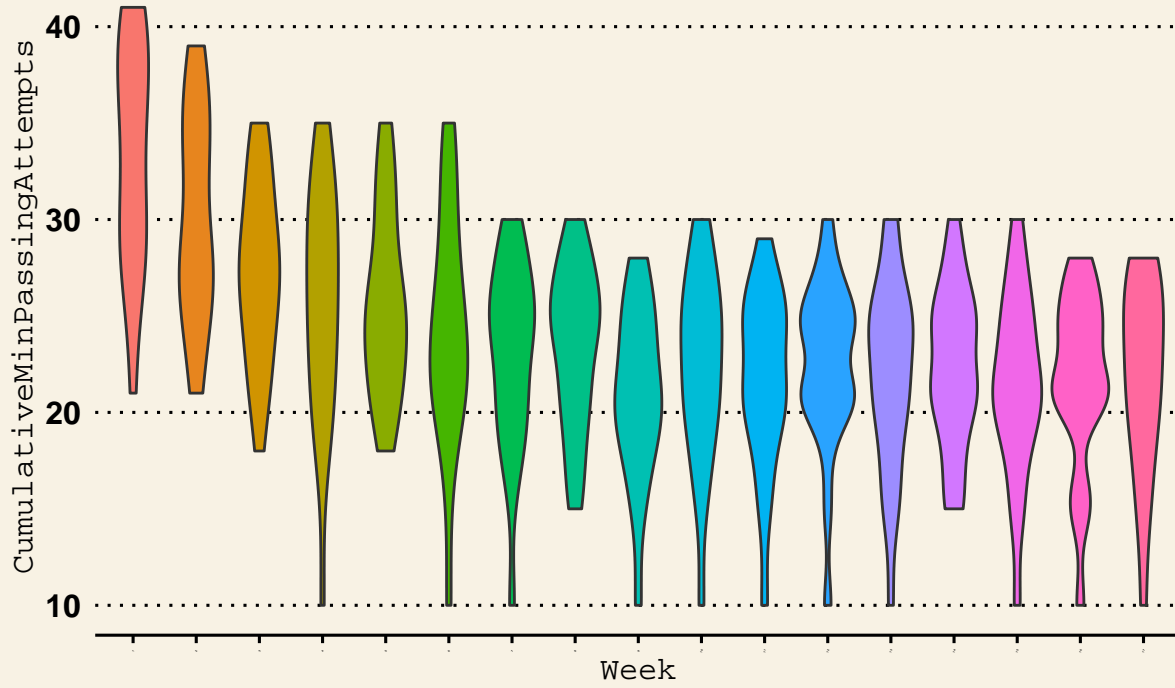
Fantasyfootball

CumulativeMinPassingYards



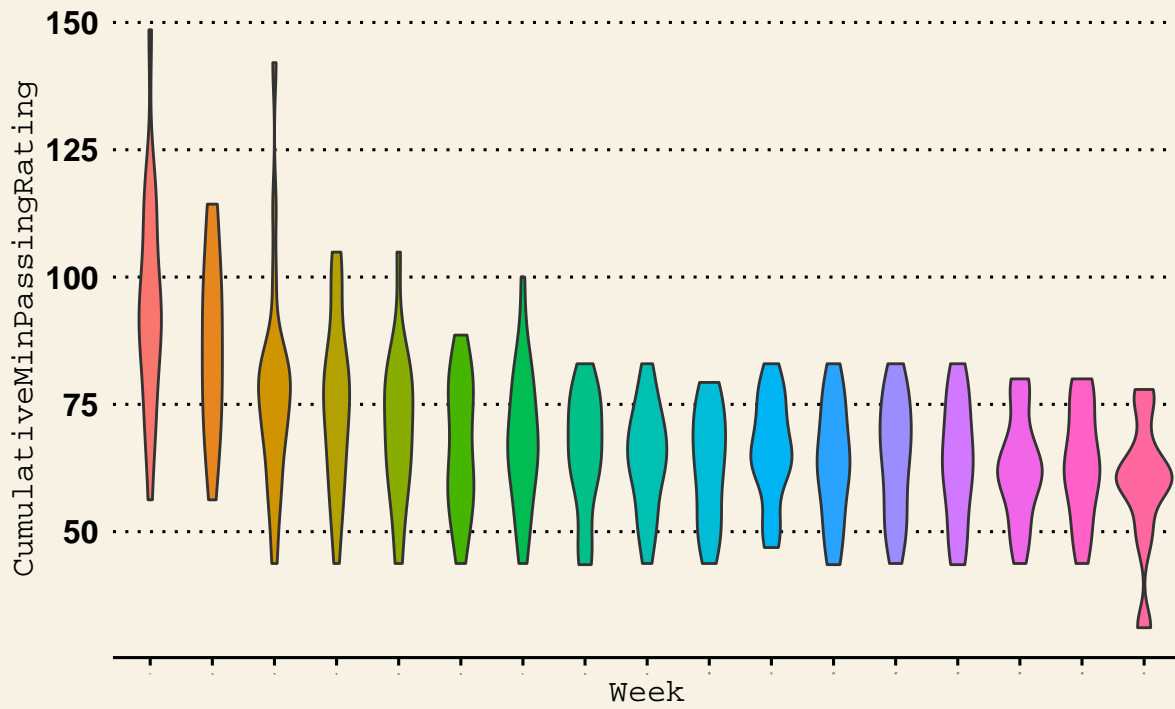
Fantasyfootball

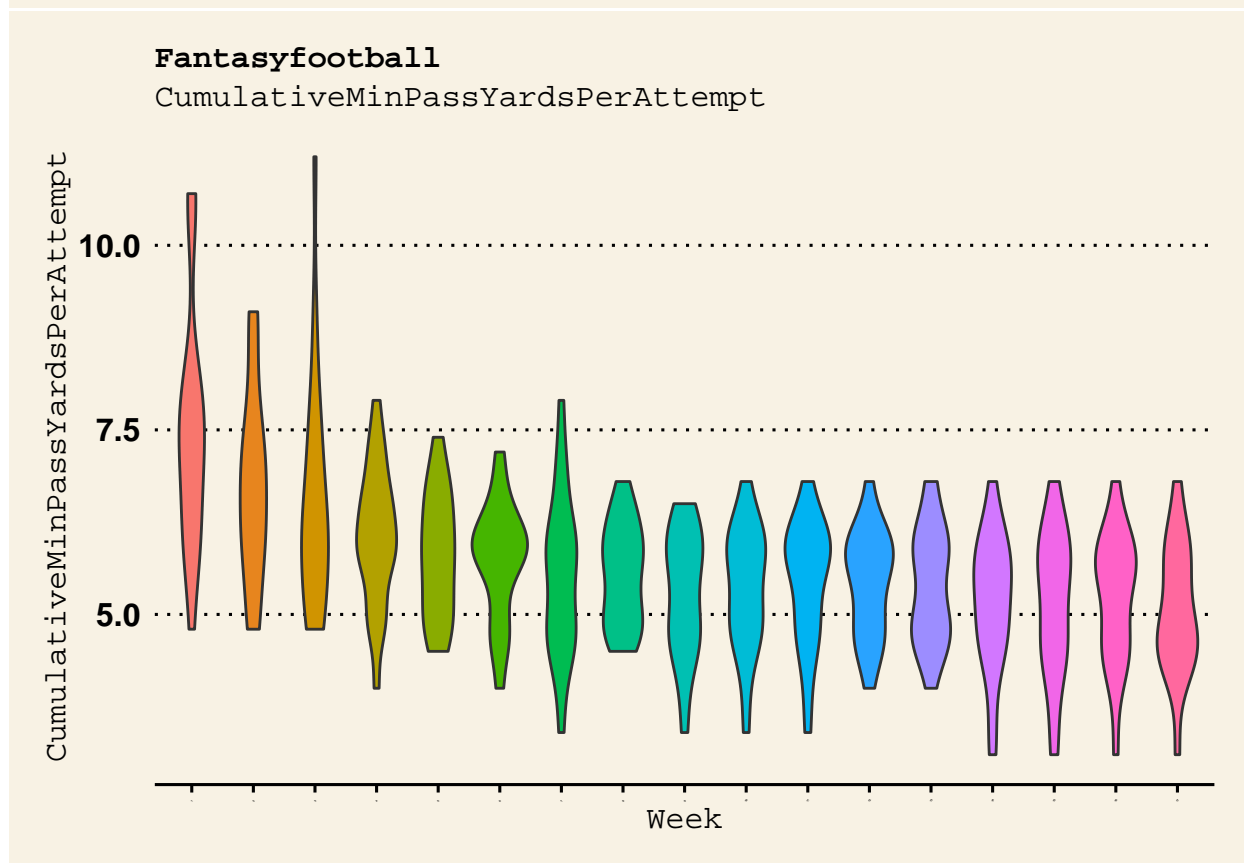
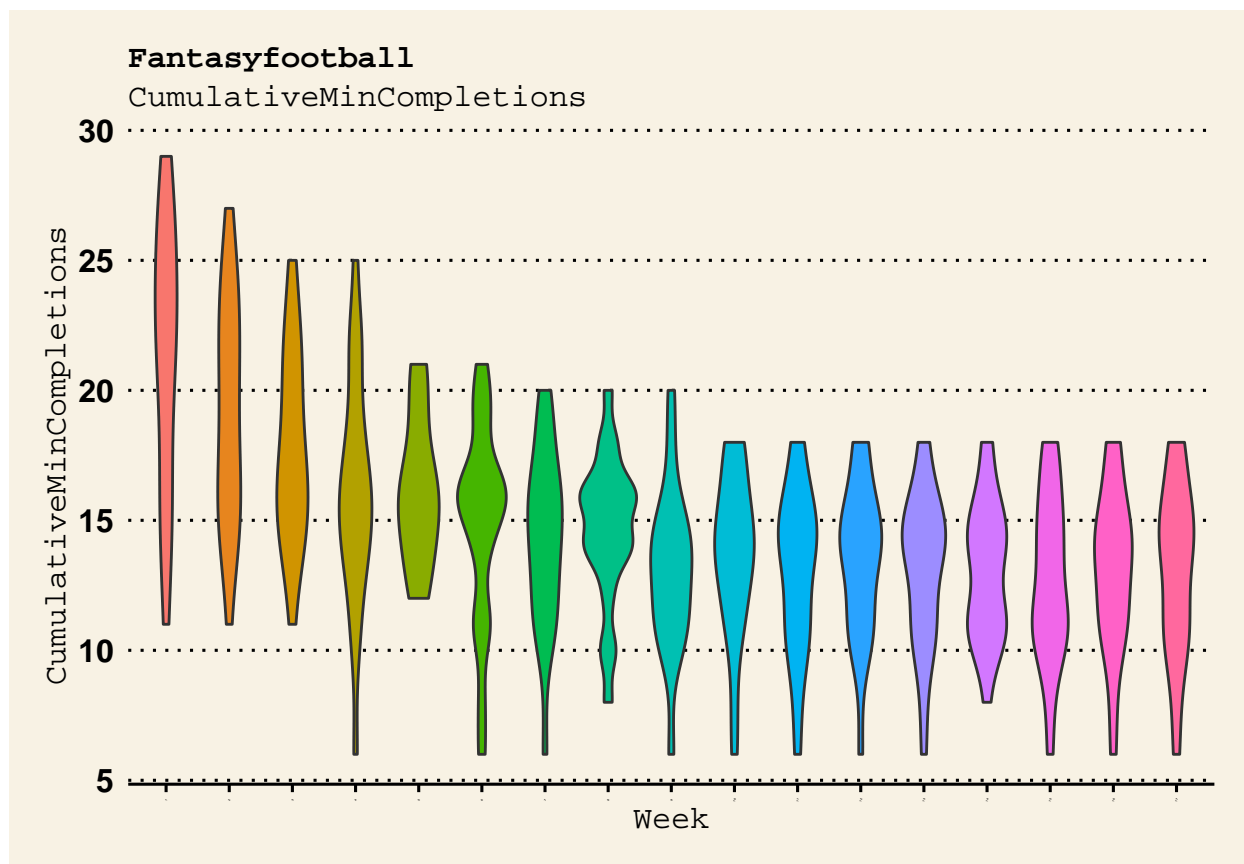
CumulativeMinPassingAttempts

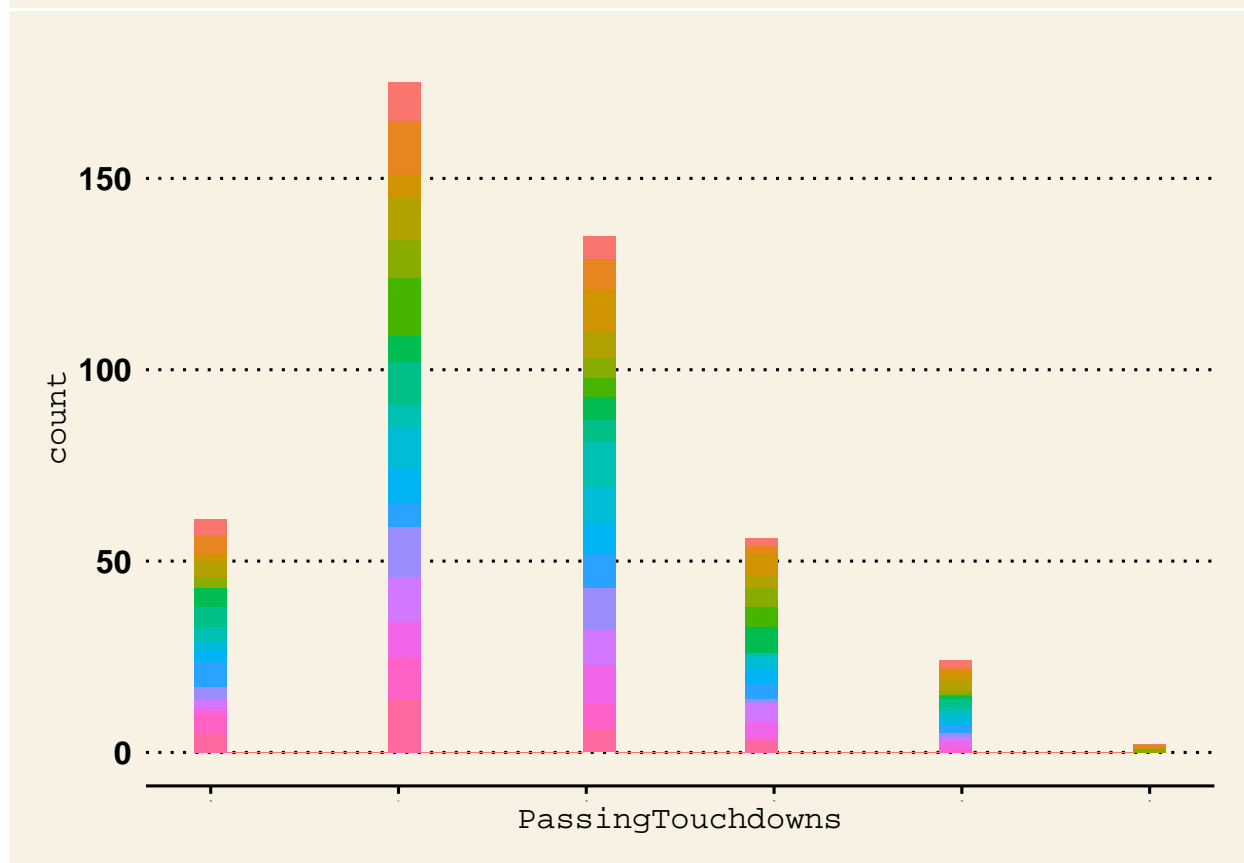
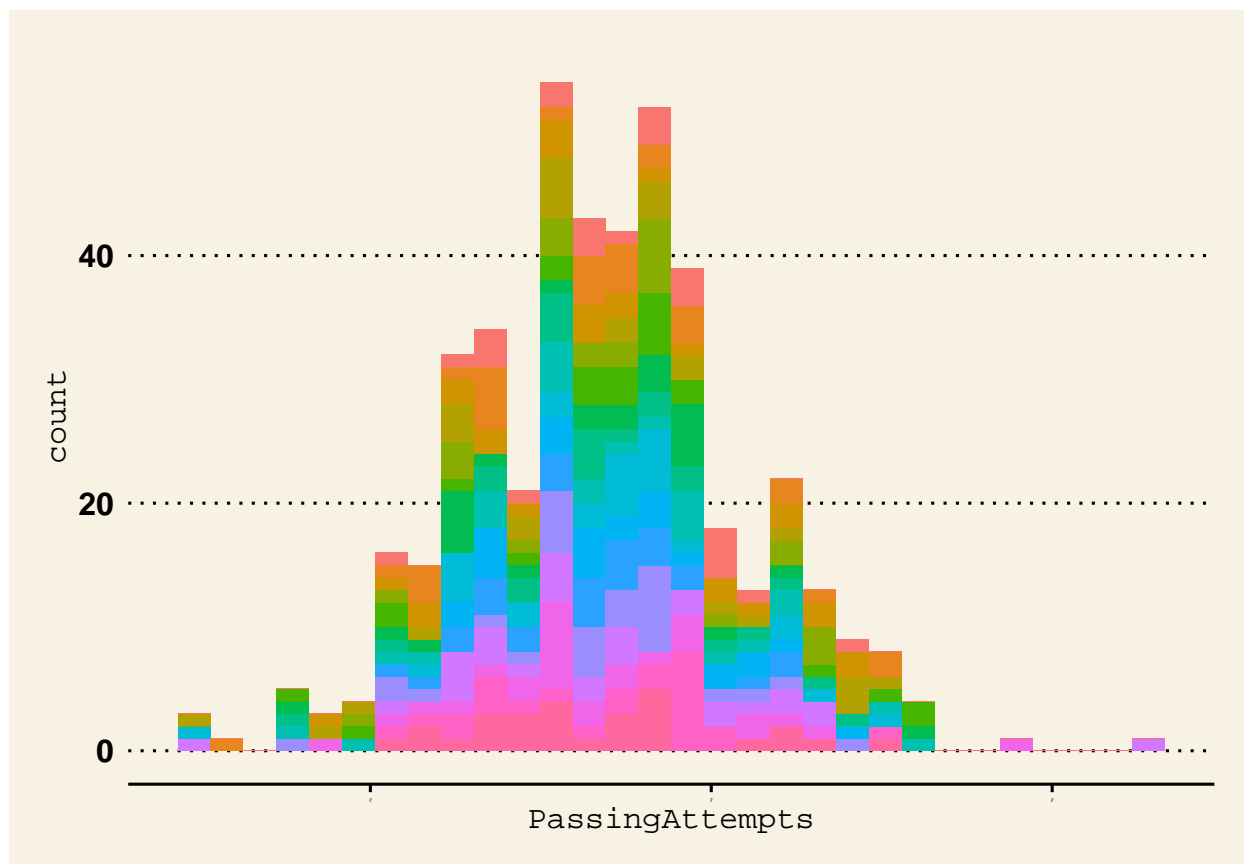


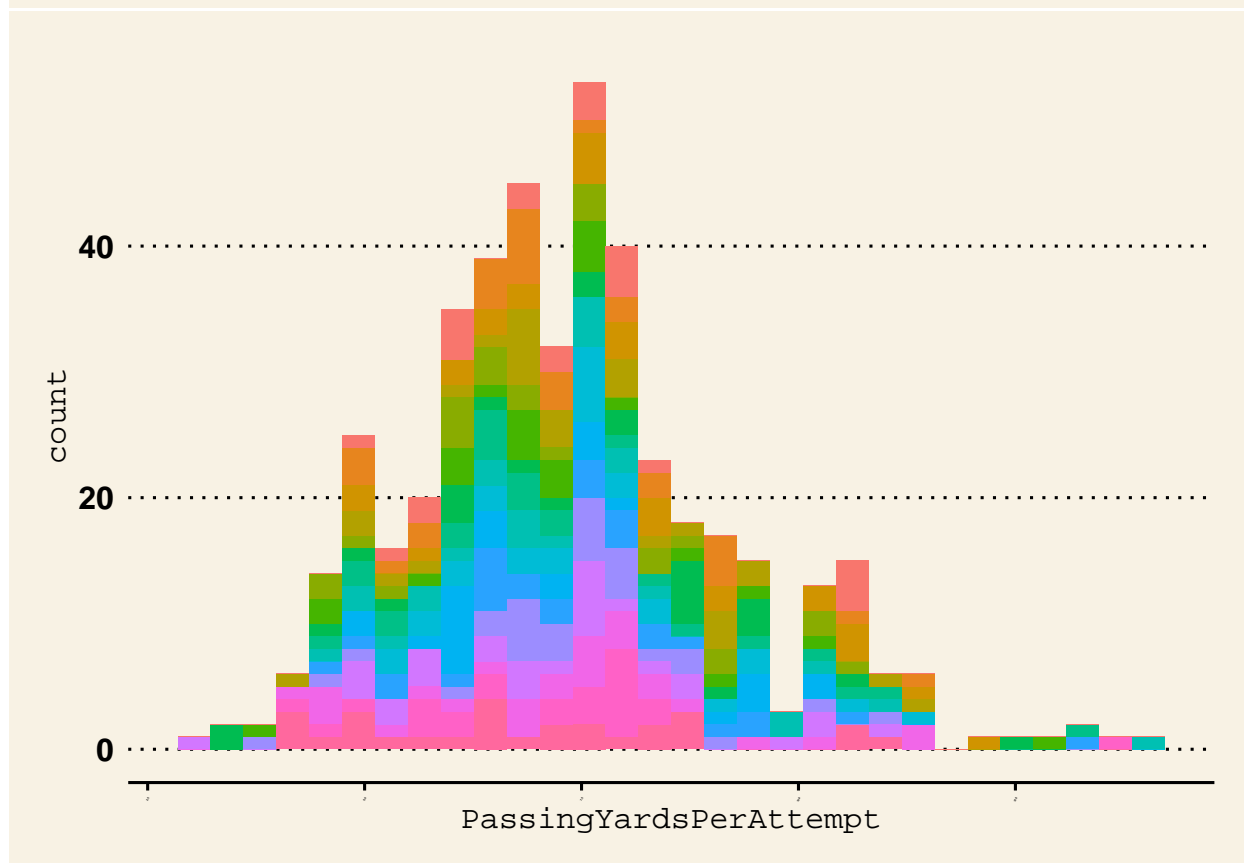
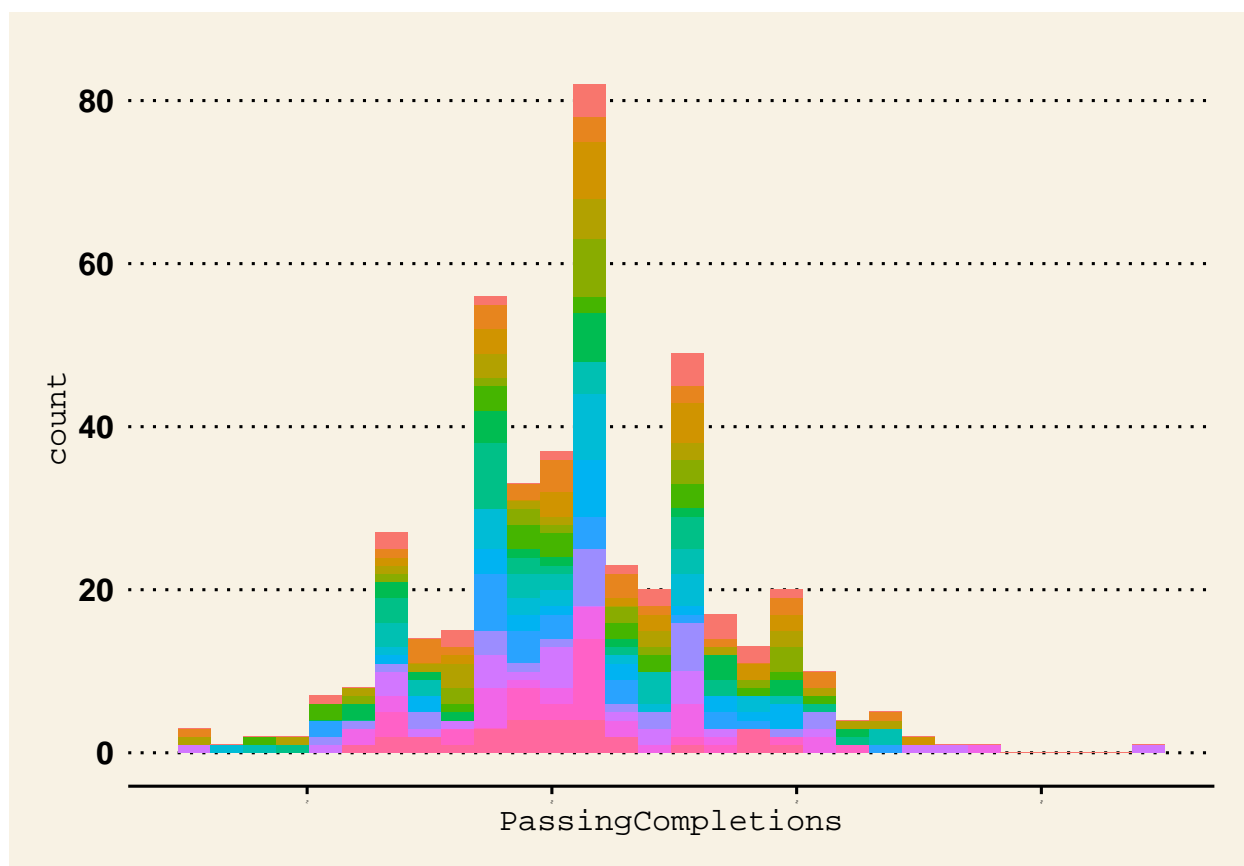
Fantasyfootball

CumulativeMinPassingRating





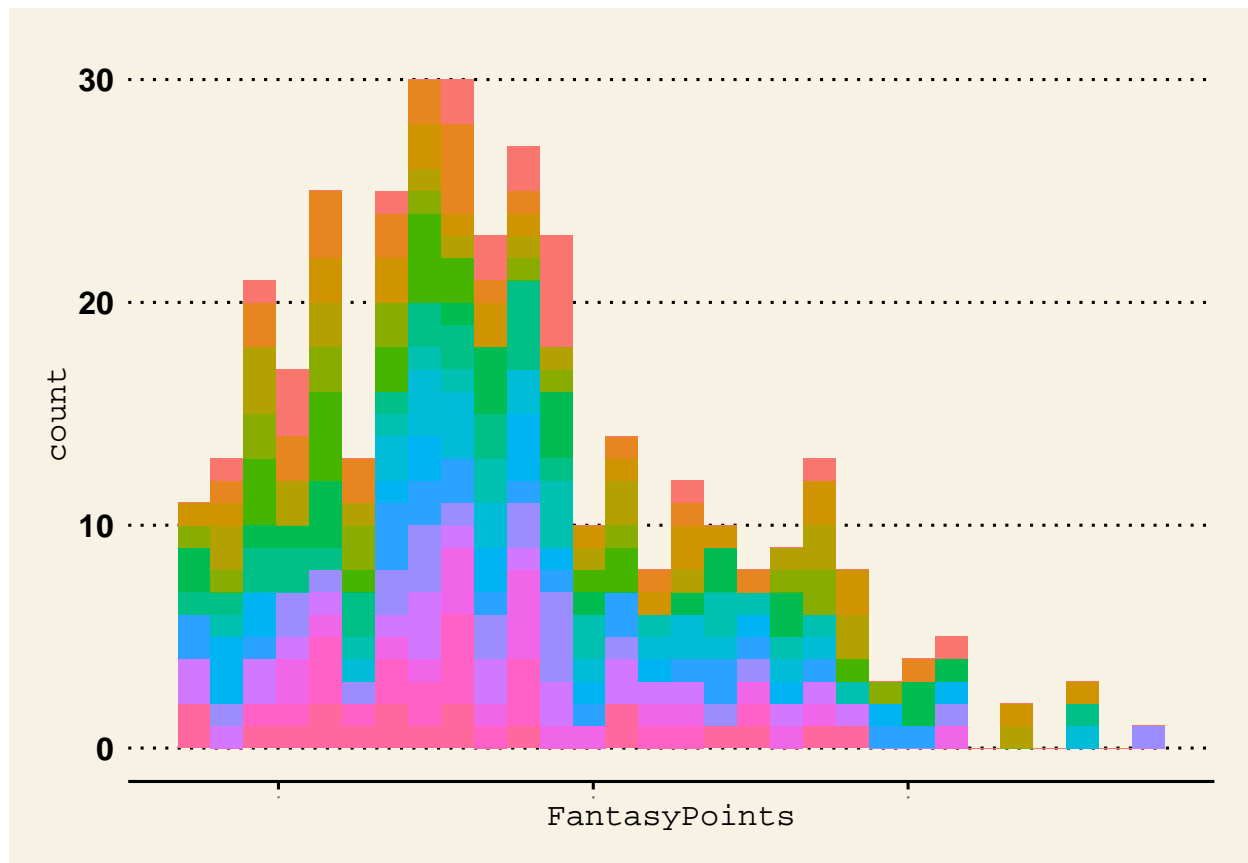


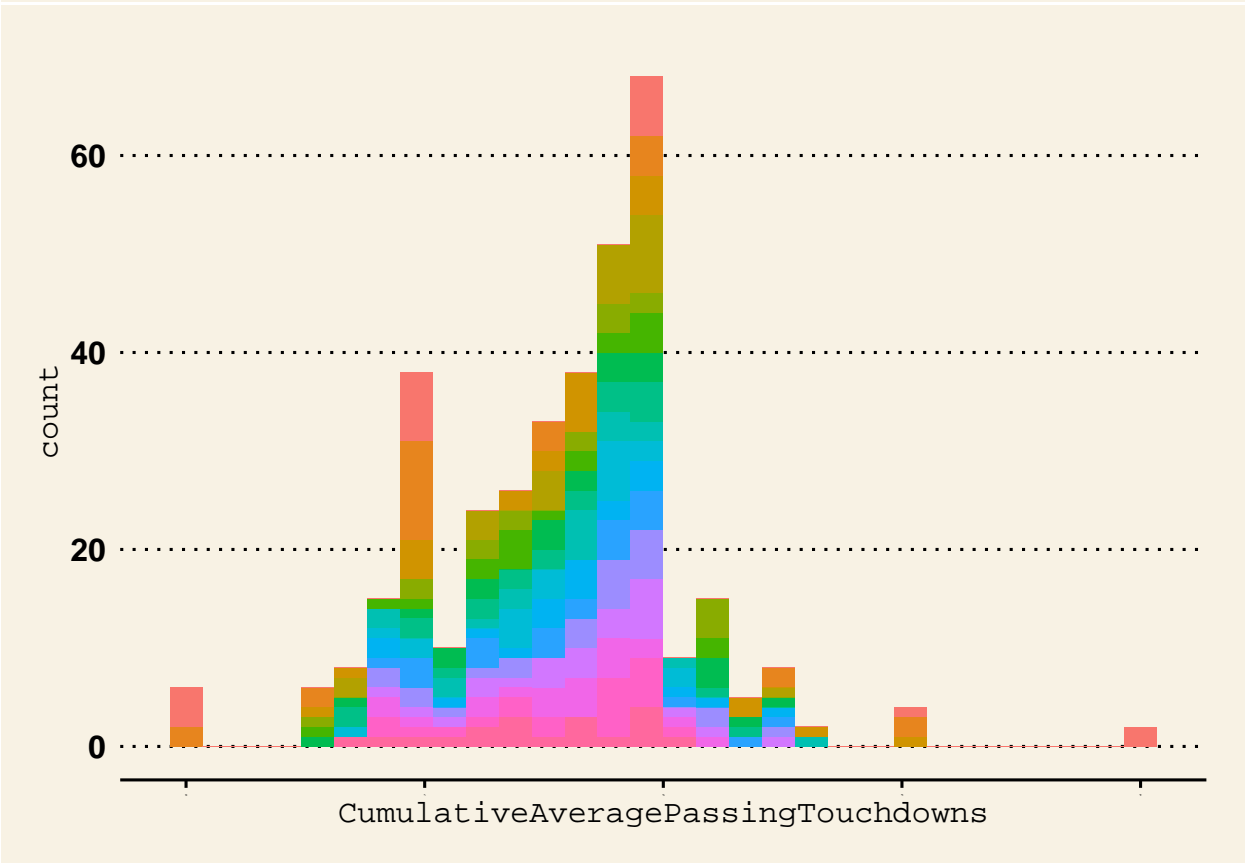
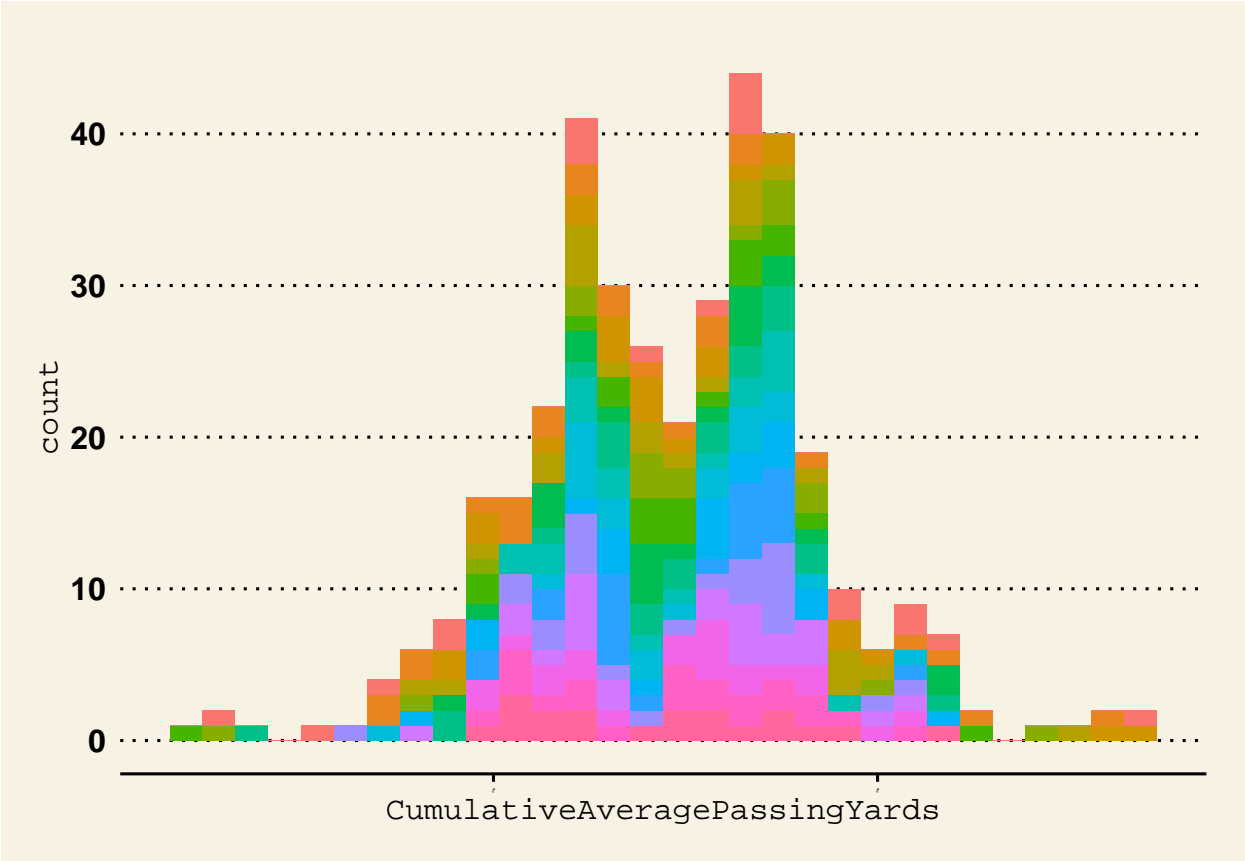


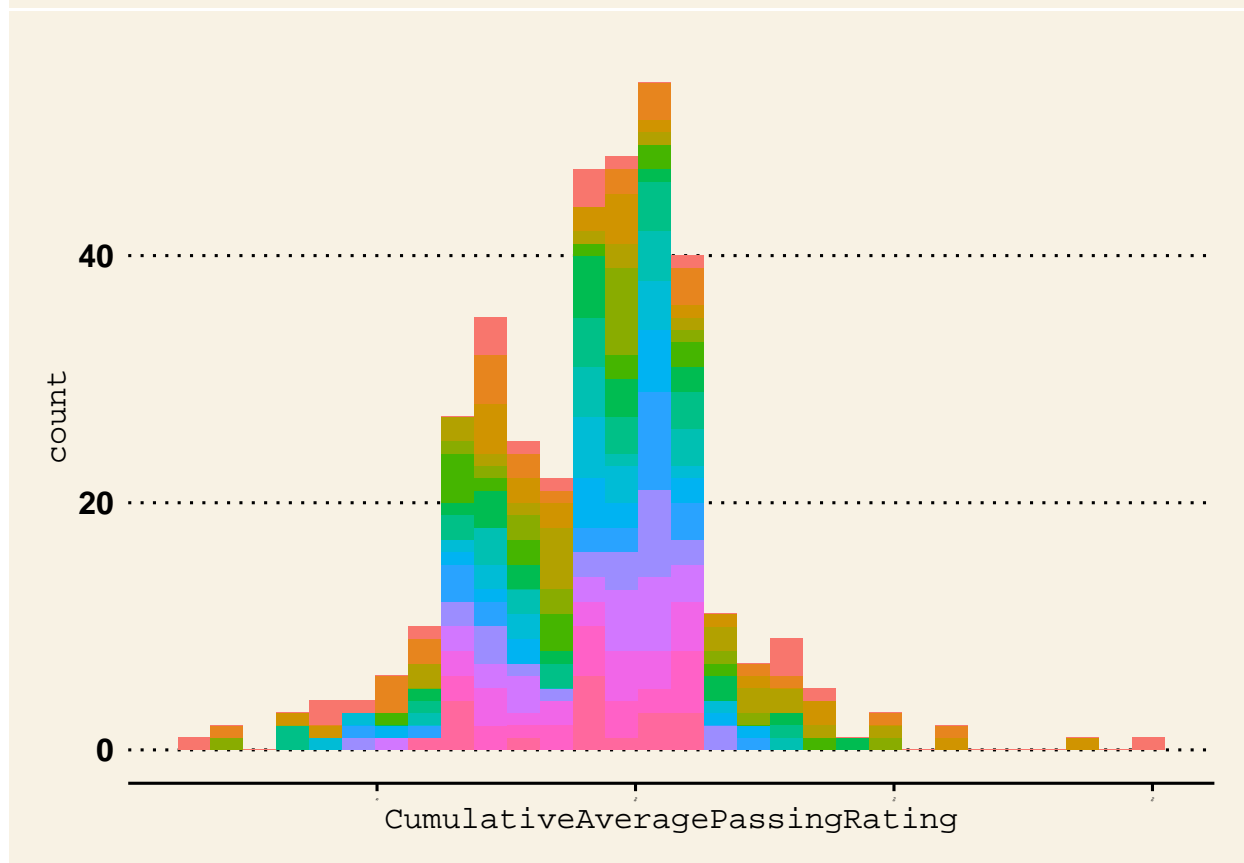
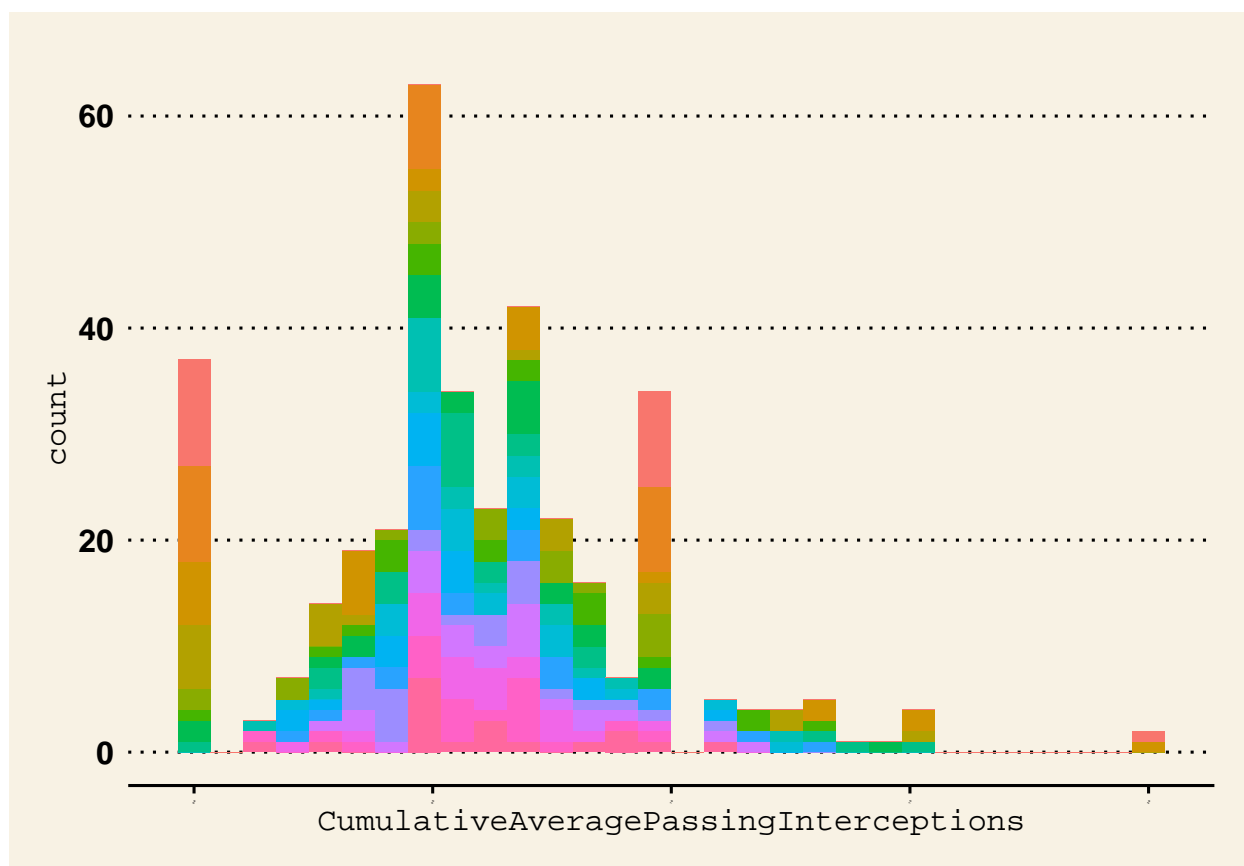
8.4.2 : Derived feature Set

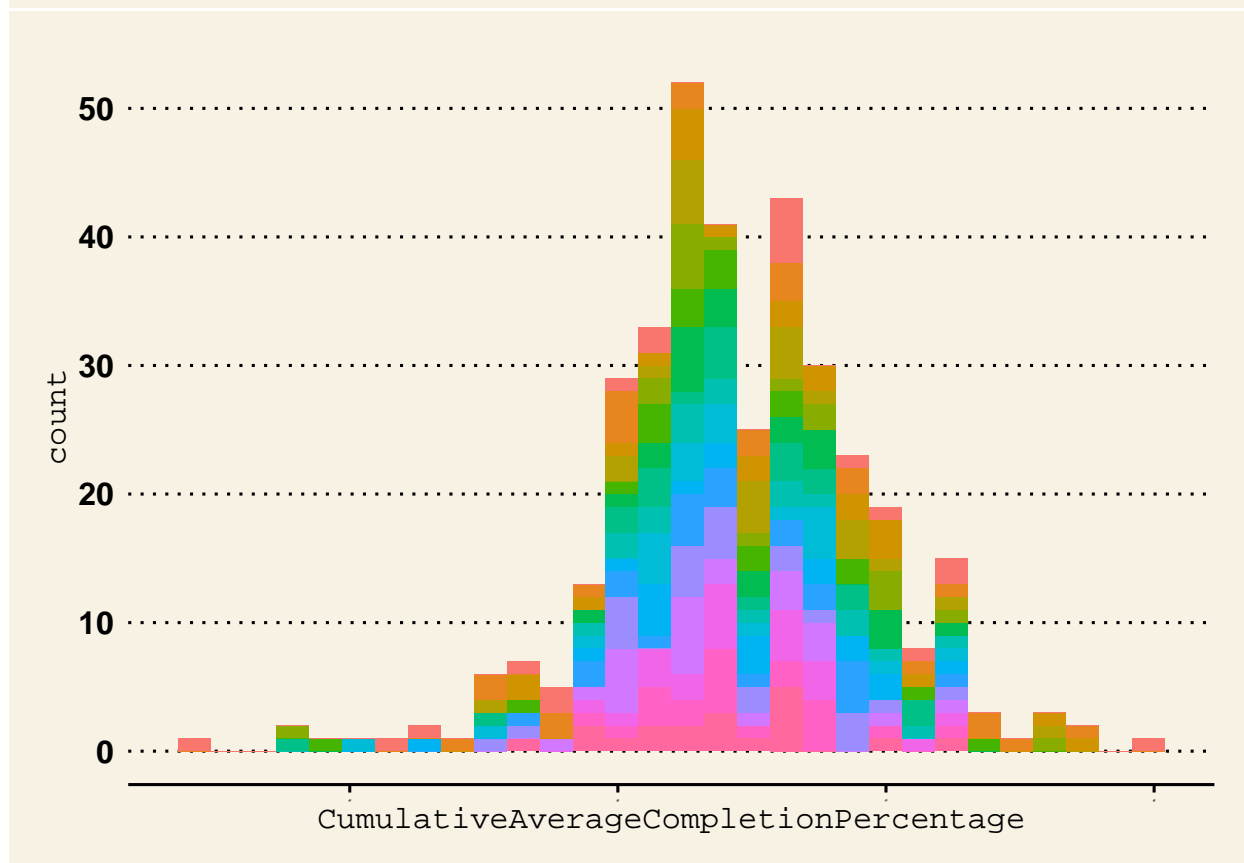
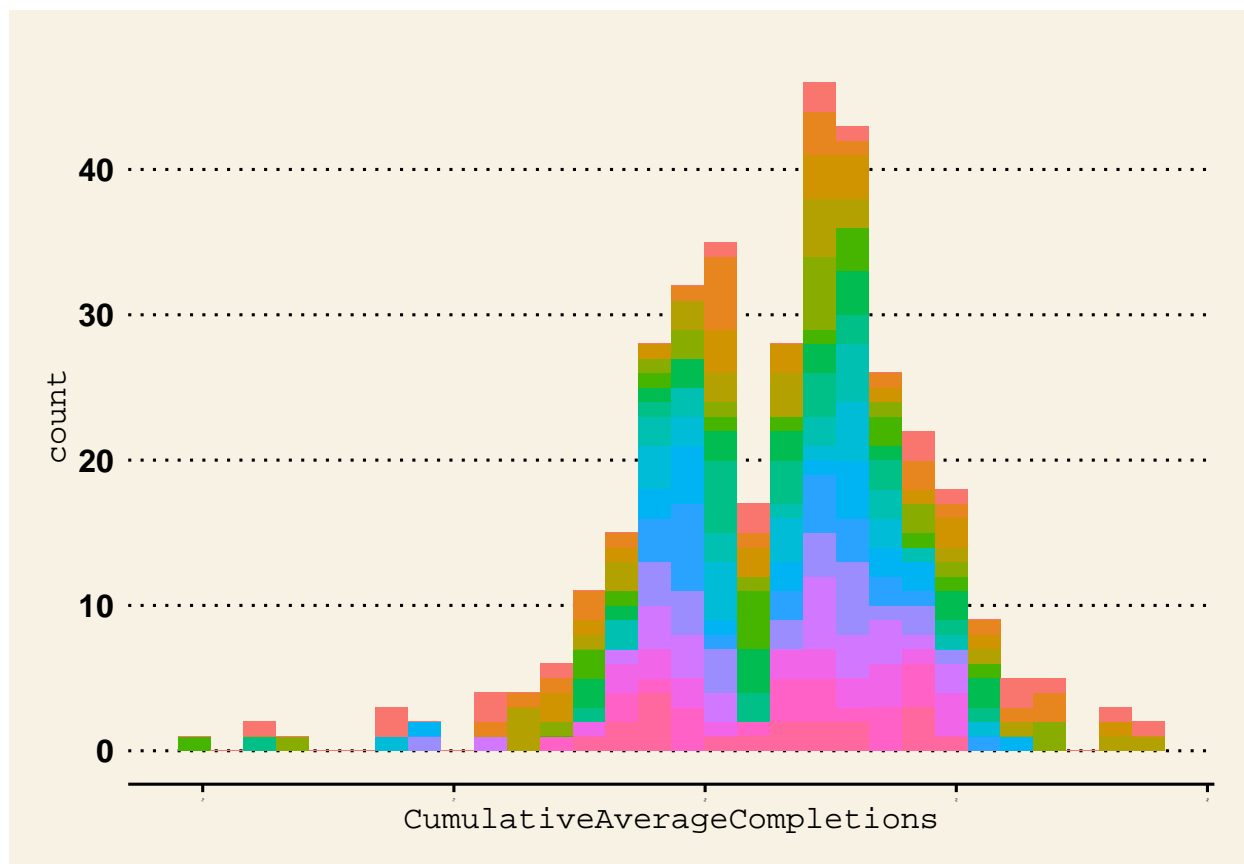
```
features_to_keep = names(eda_derived[-1])
```

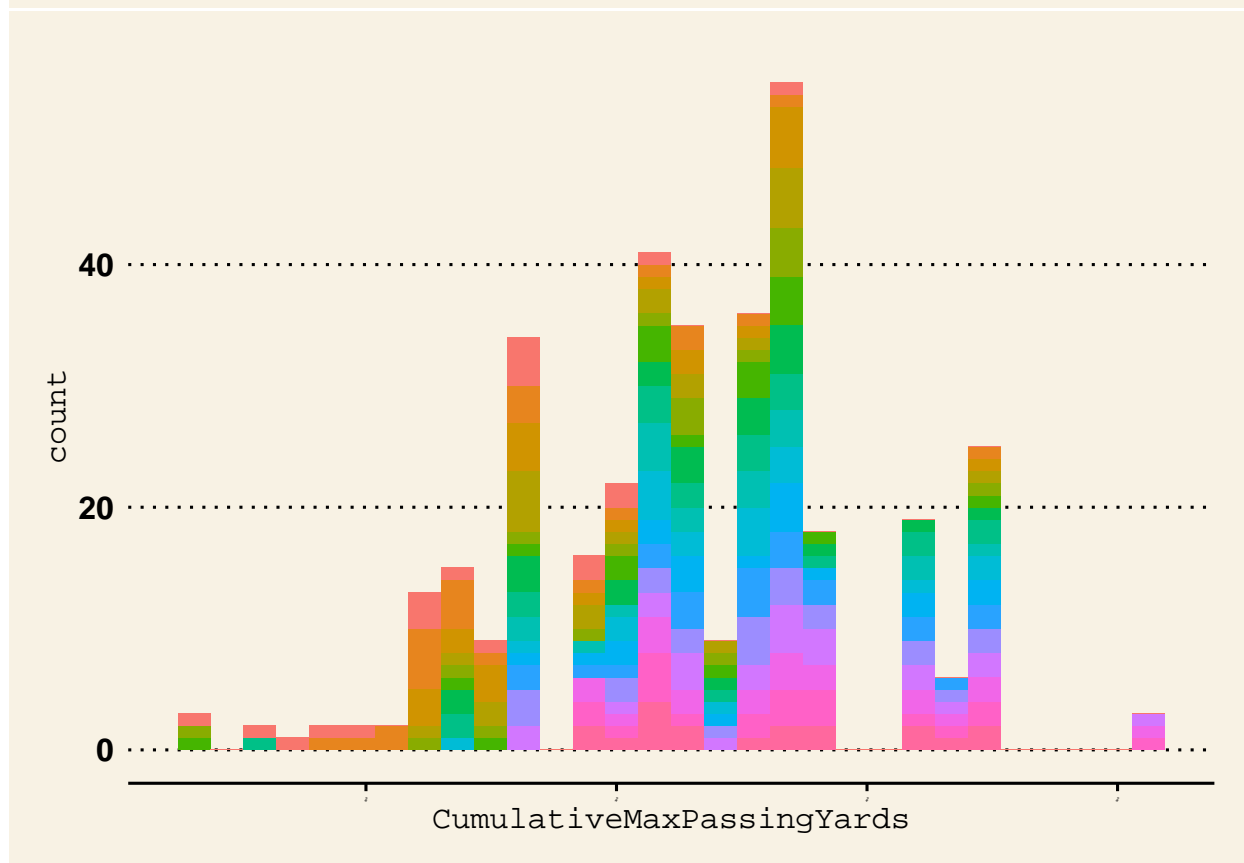
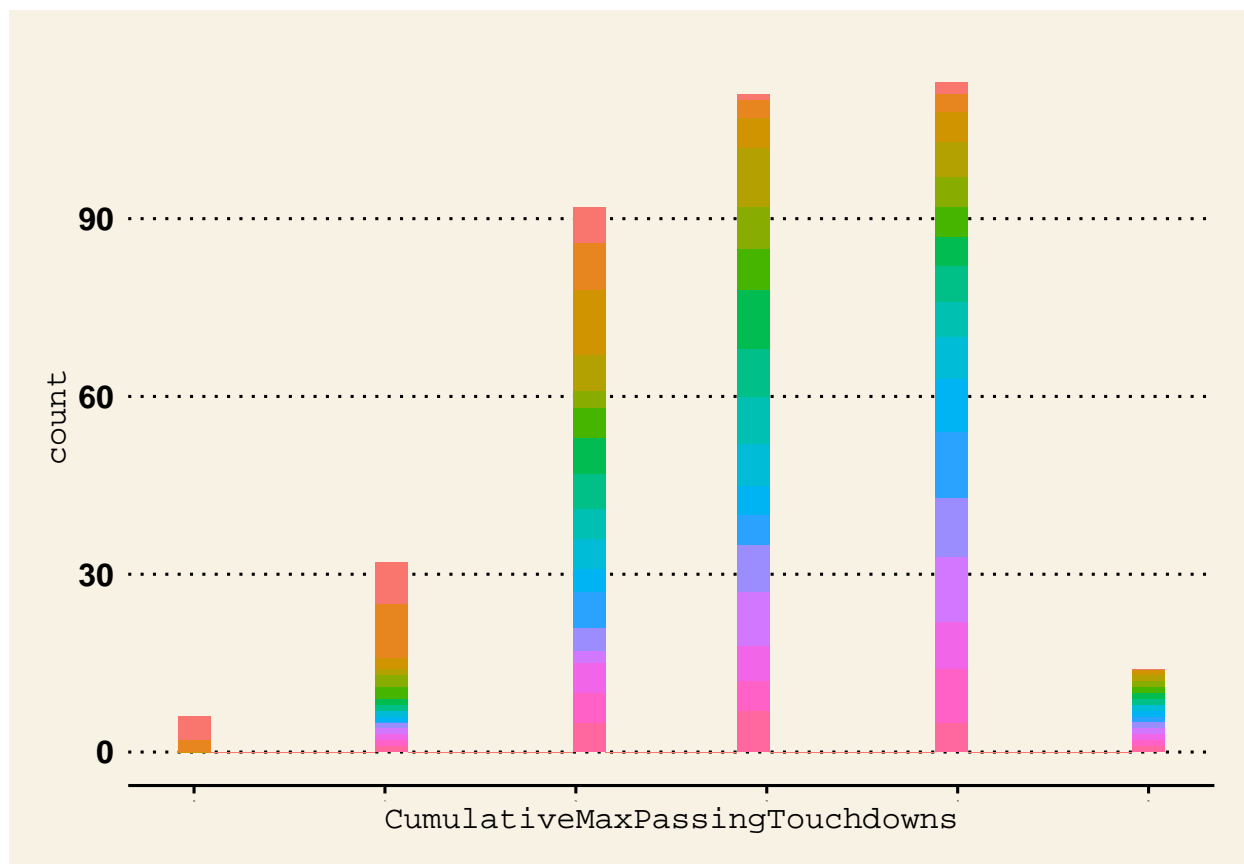
```
for(f in features_to_keep){  
  hist = eda_derived %>% ggplot(aes_string(x=f,fill="Week"))+  
    geom_histogram(bins=30,show.legend = FALSE)+  
    theme_wsj()+  
    theme(plot.title = element_text(size = rel(0.5)),  
          plot.subtitle = element_text(size = rel(0.5)),  
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),  
          axis.title = element_text(size = rel(0.5)),  
          legend.position = "right",  
          legend.direction = "vertical",  
          legend.title = element_text(size = rel(0.5)))  
  print(hist)  
}
```

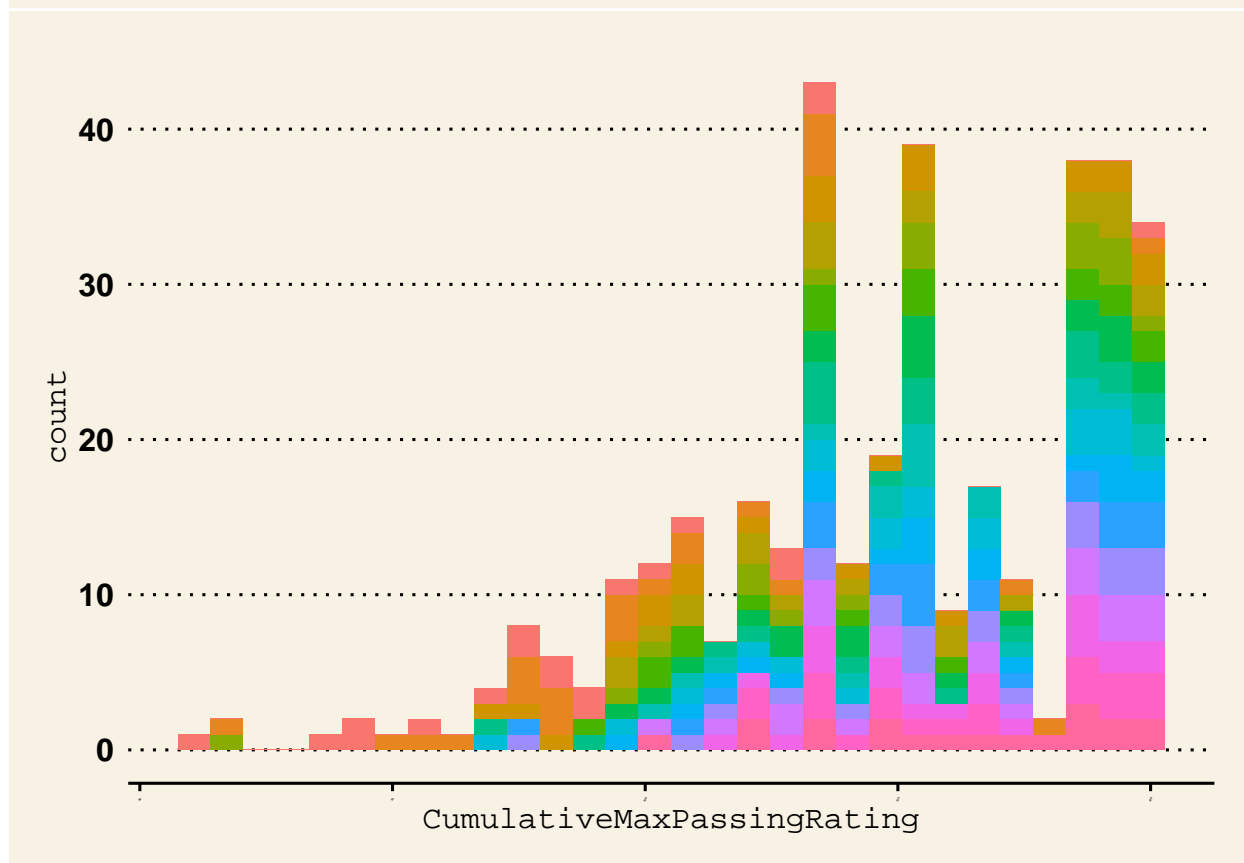
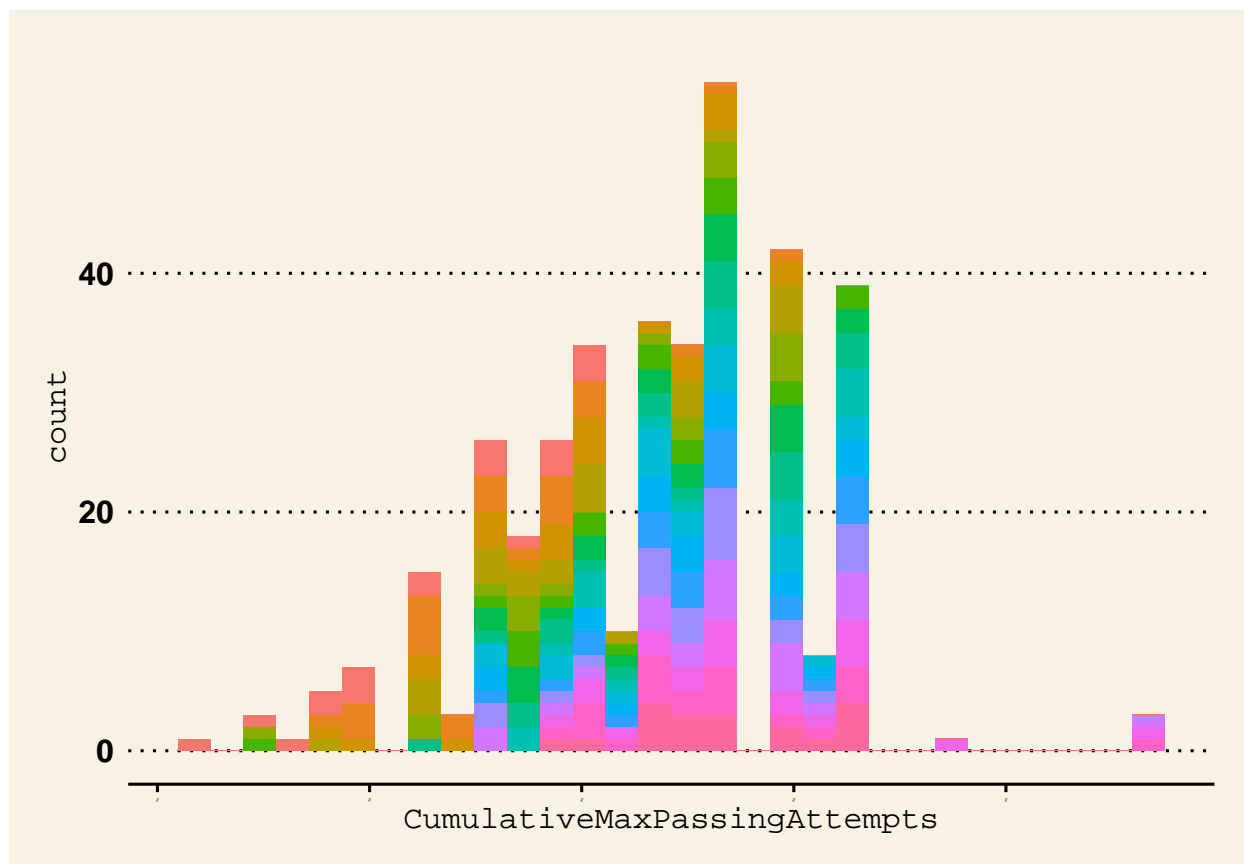


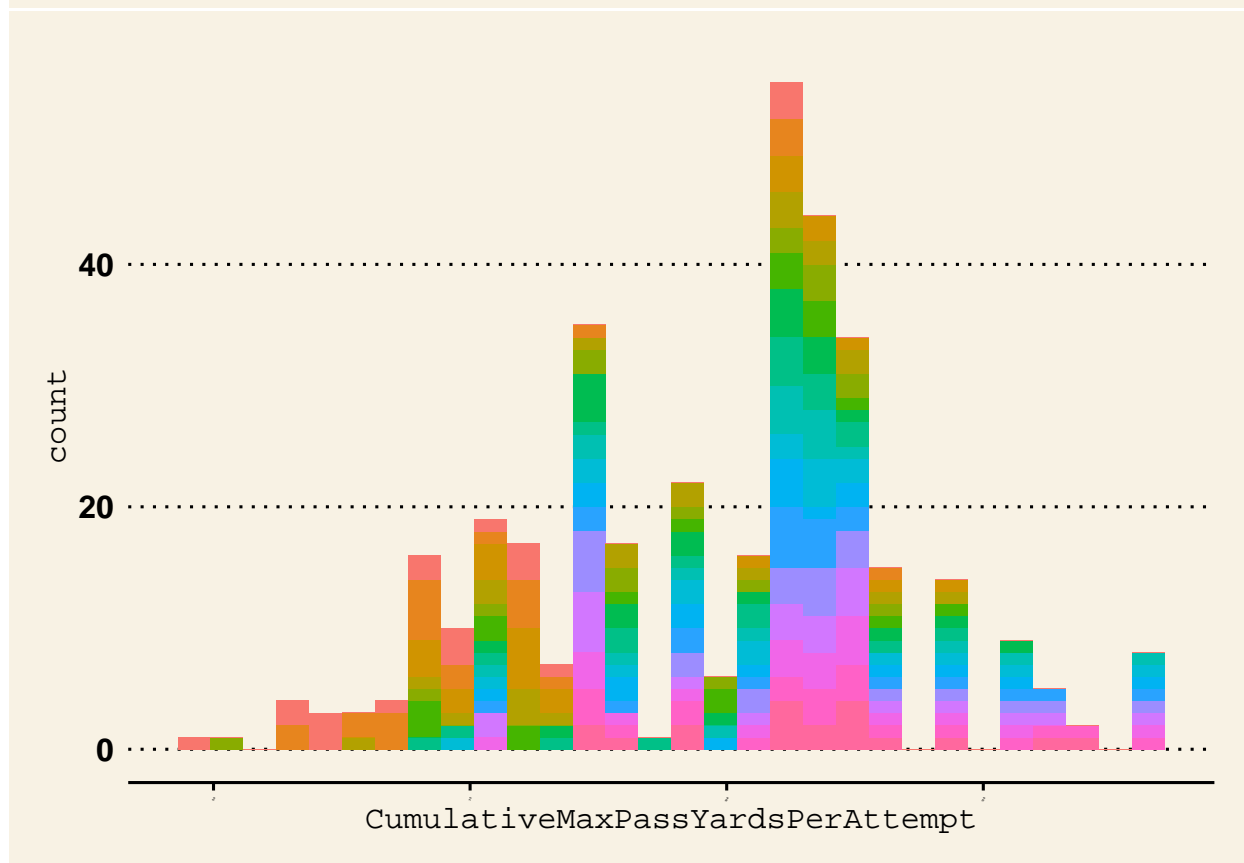
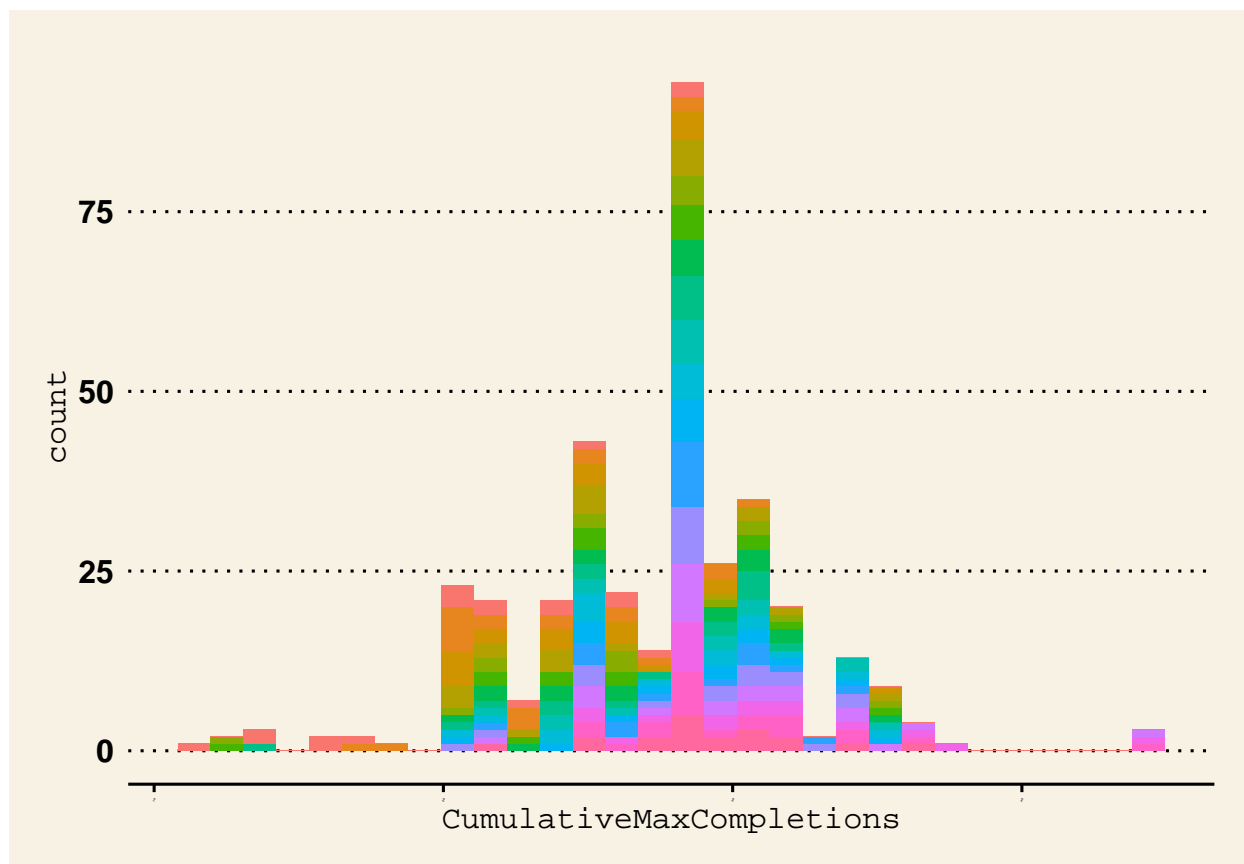


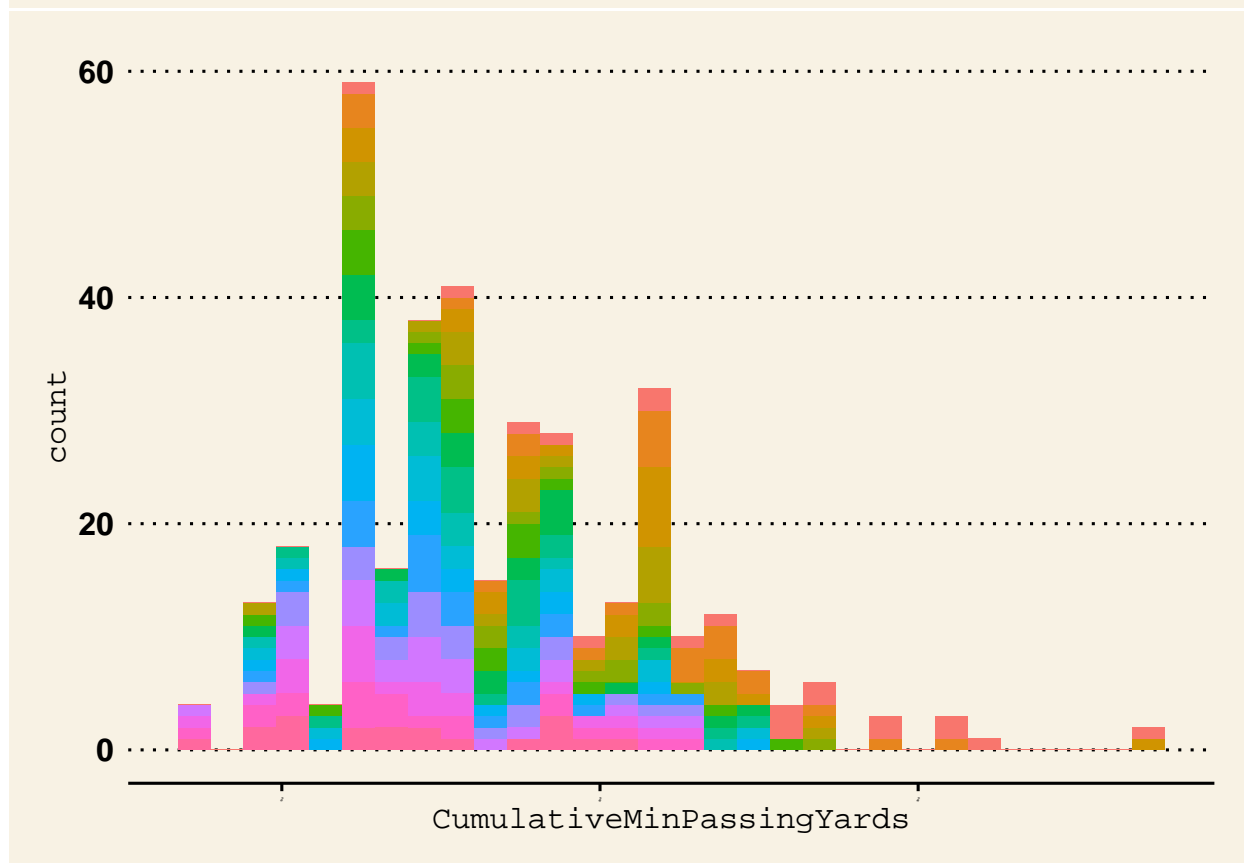
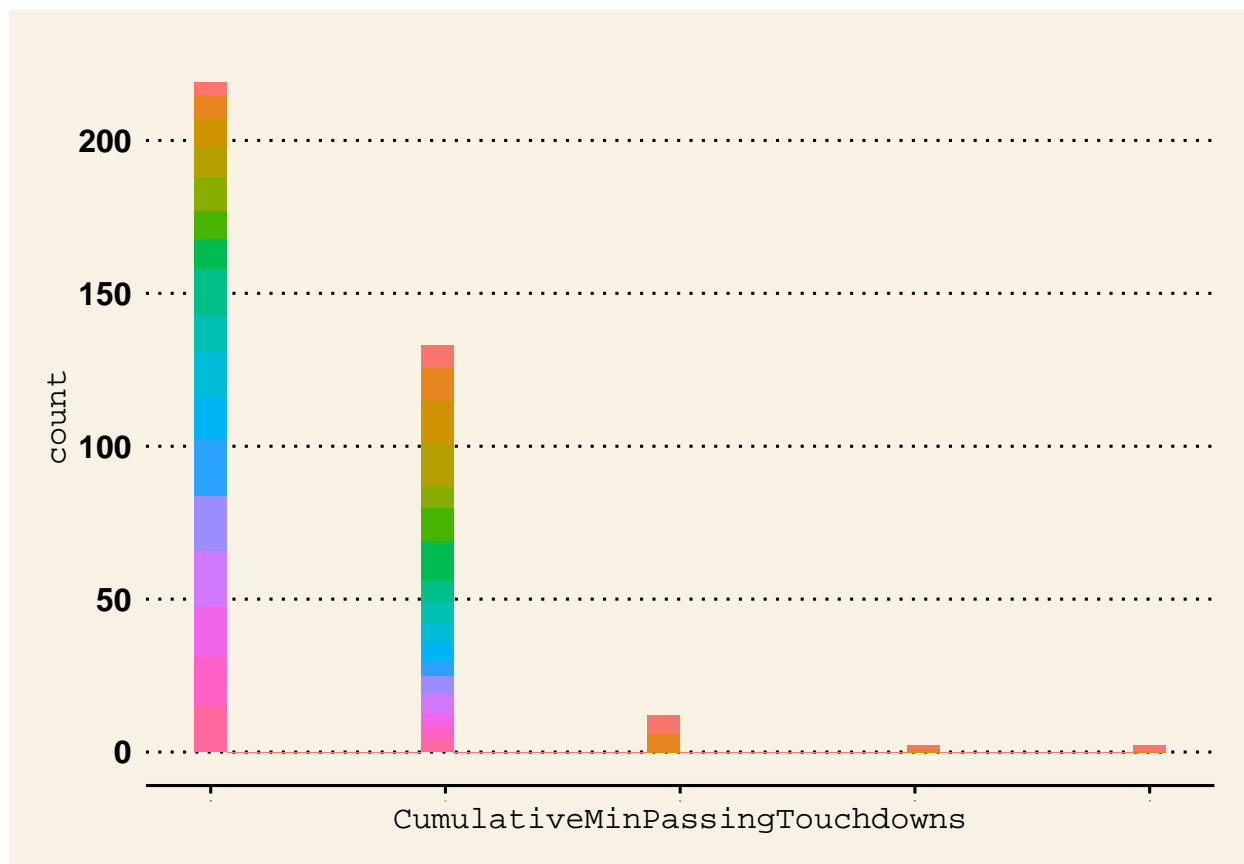


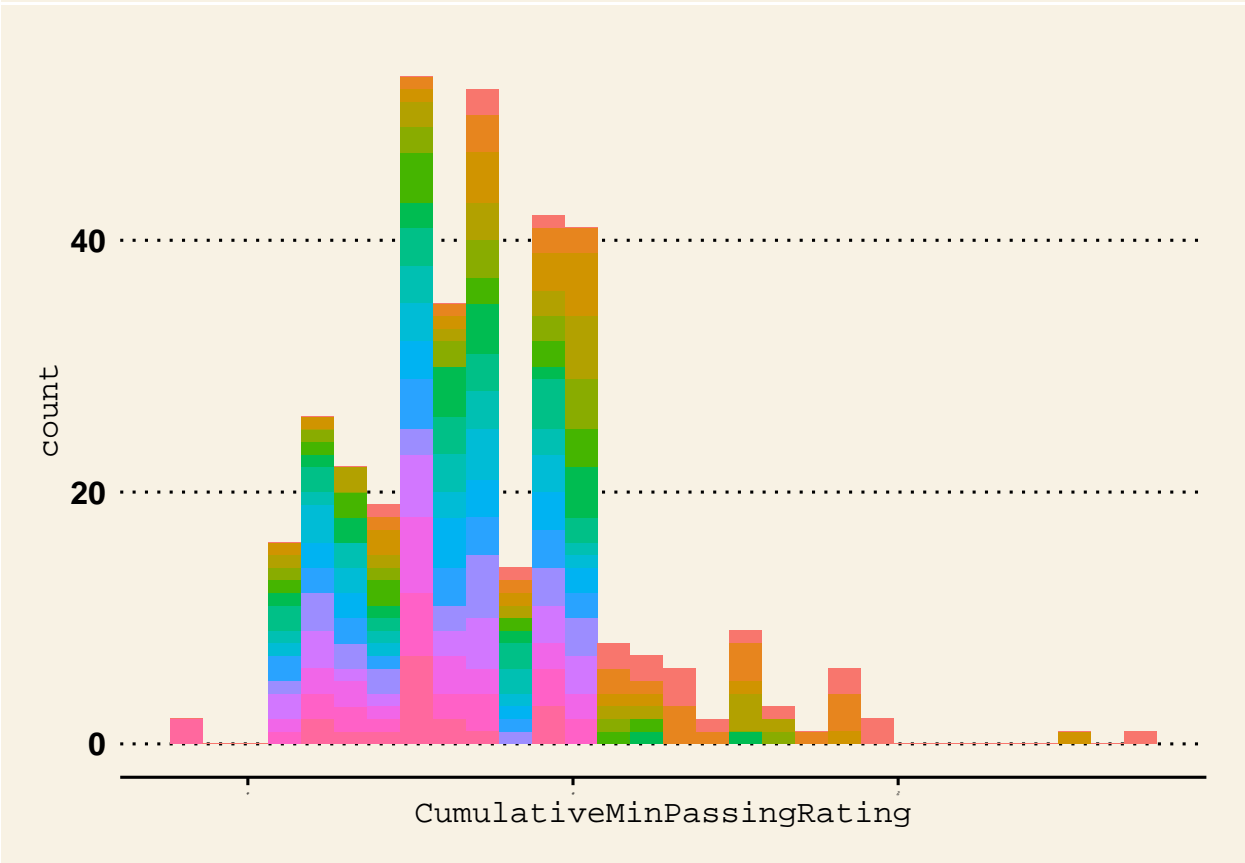
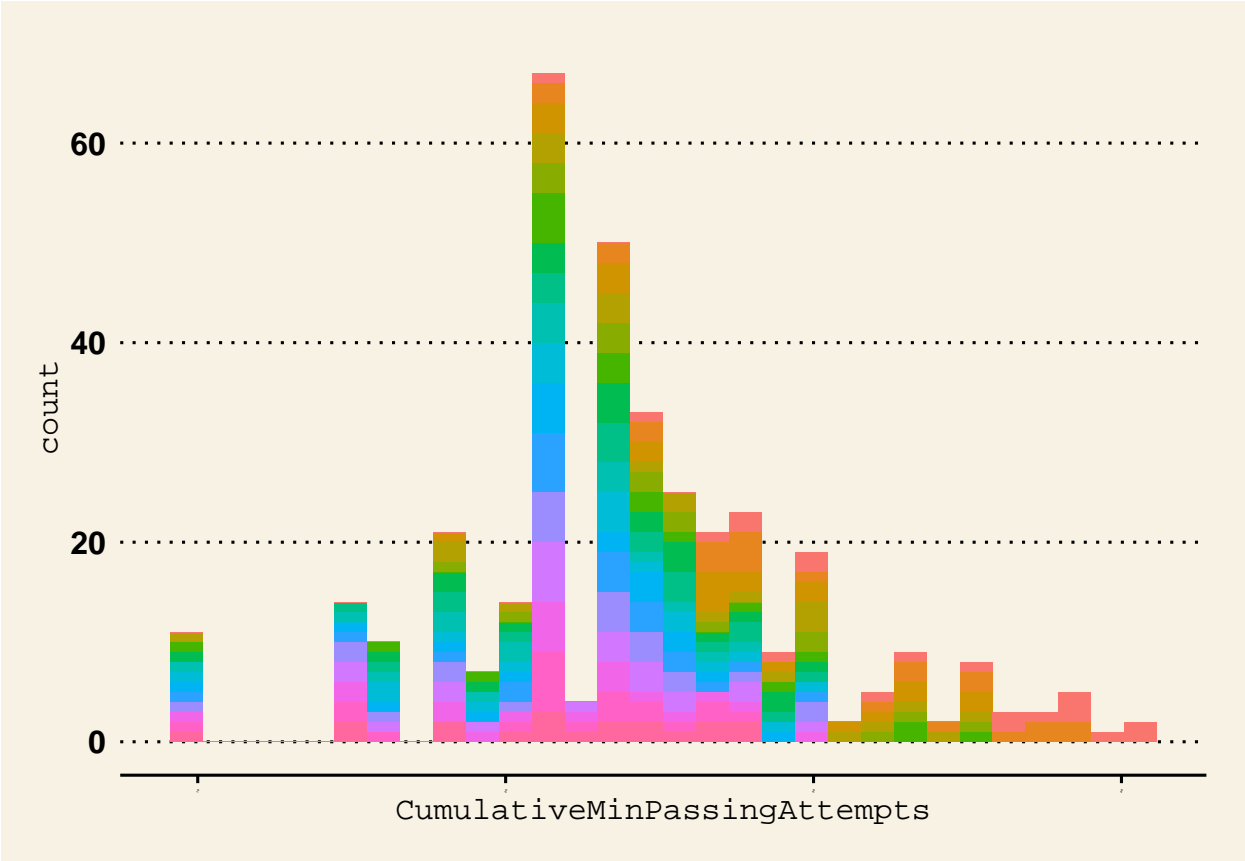


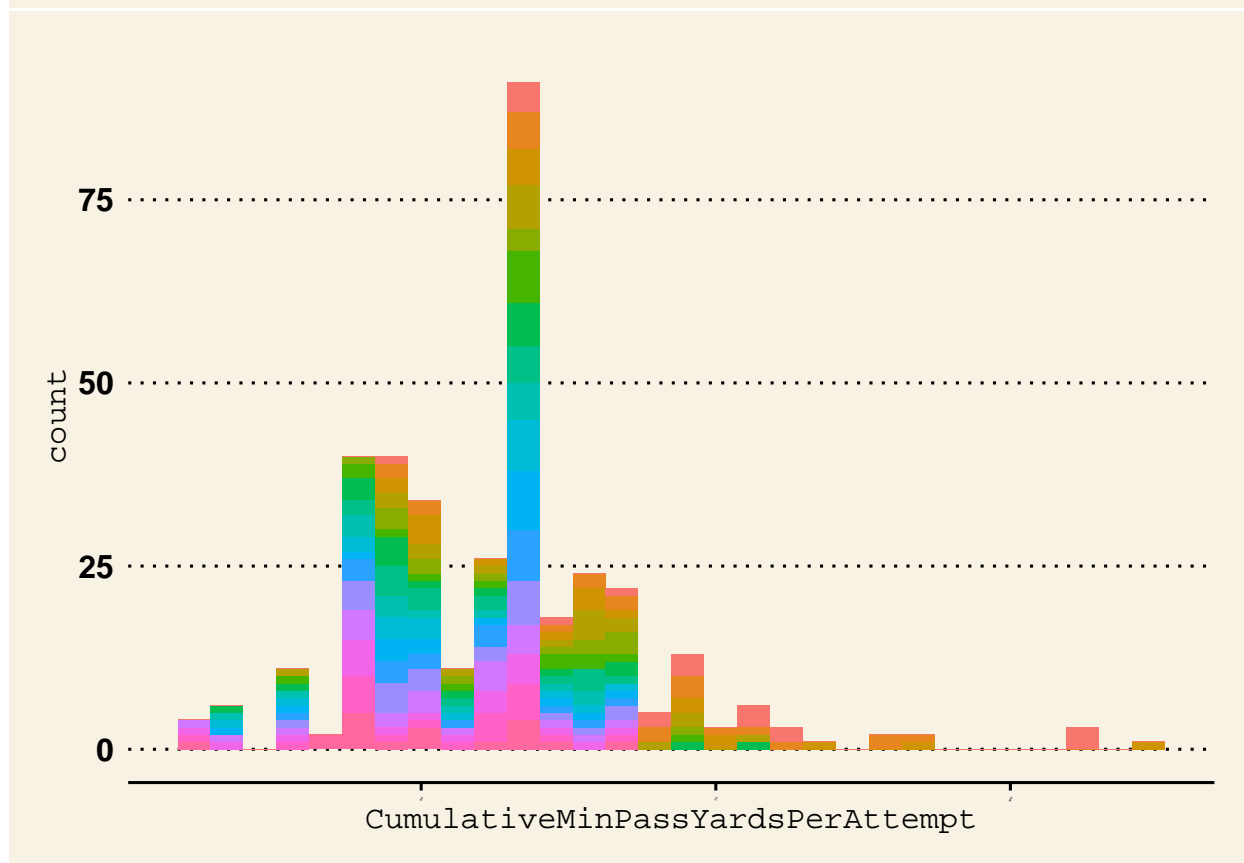
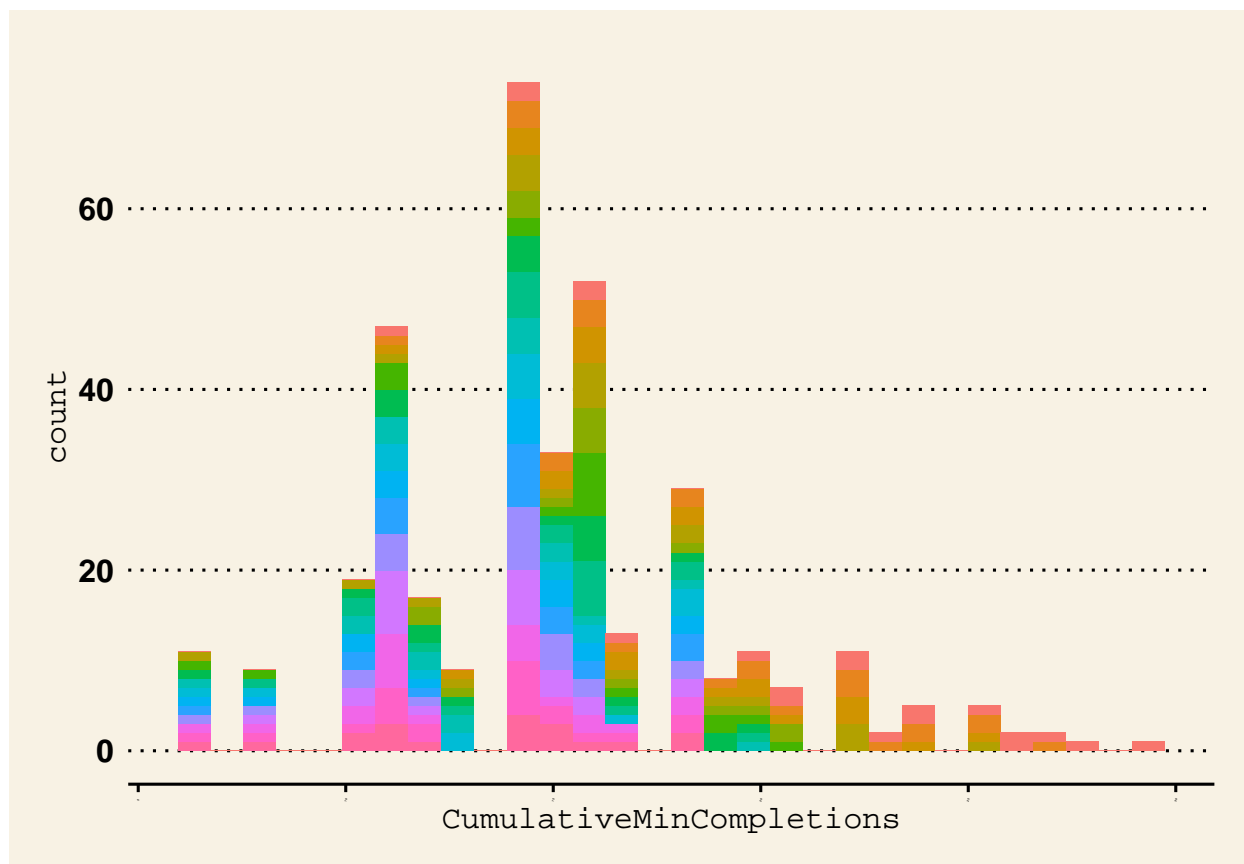






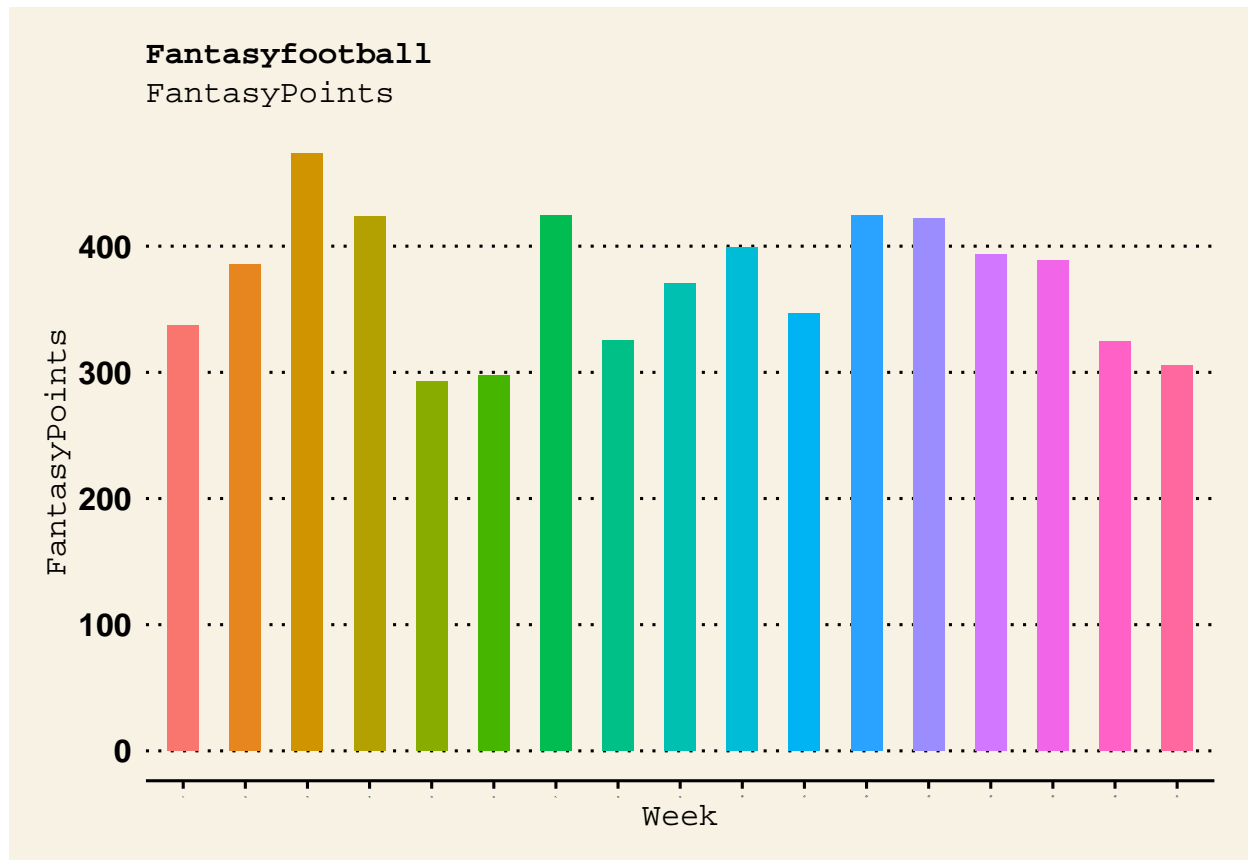


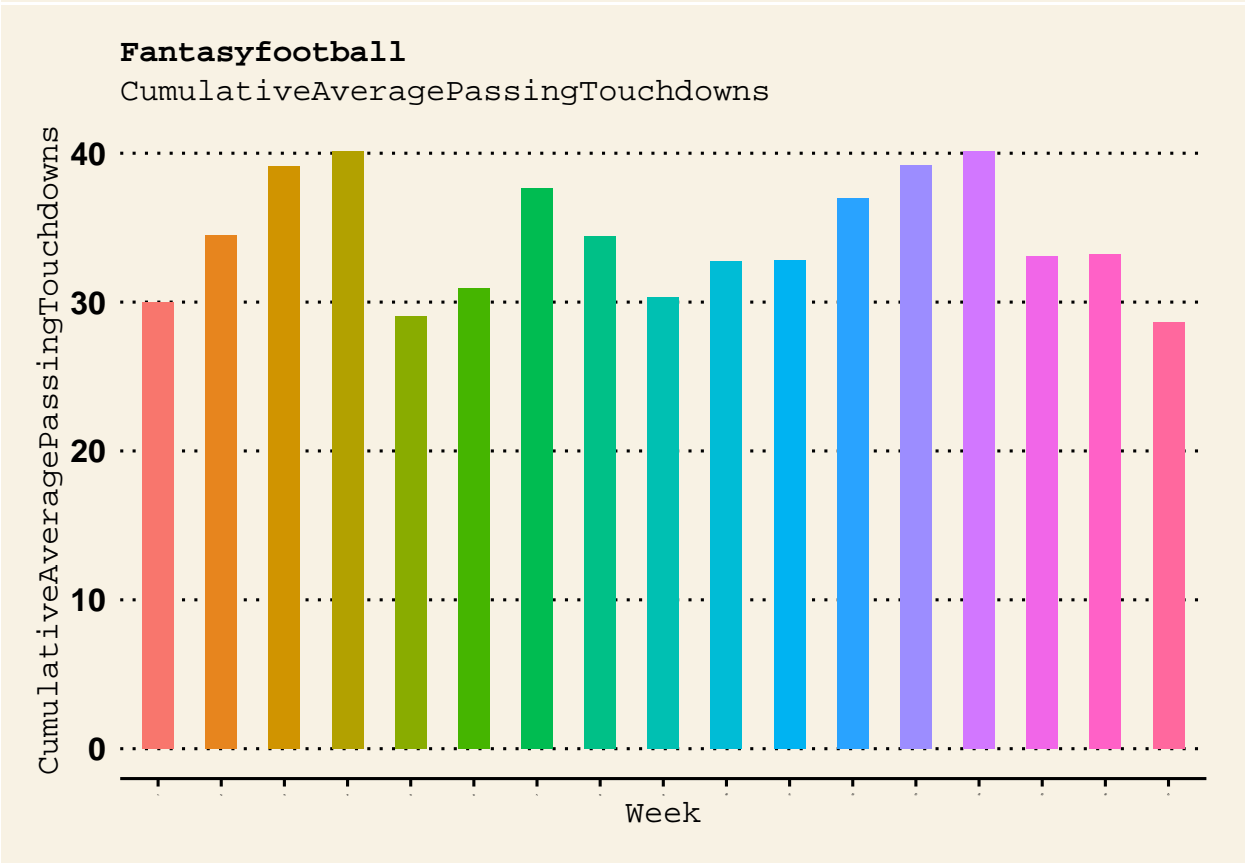
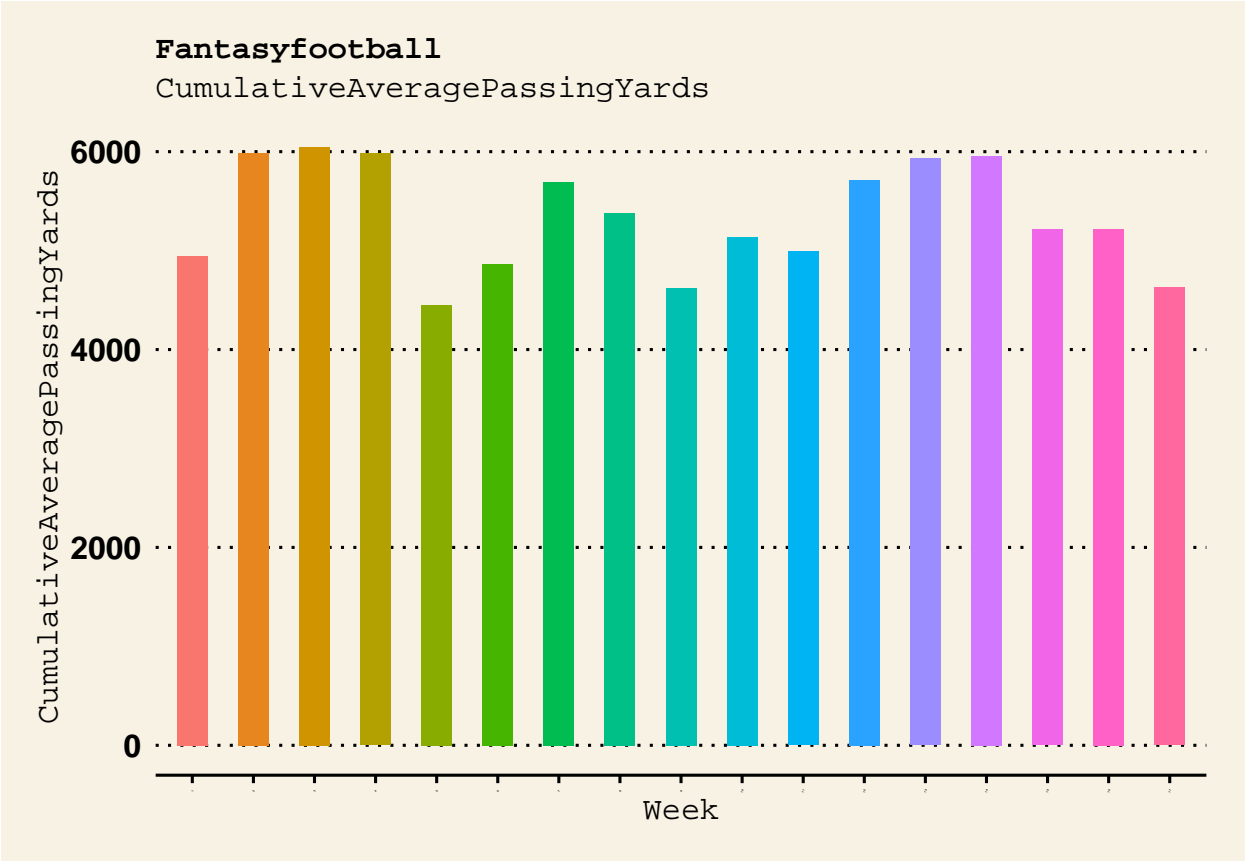


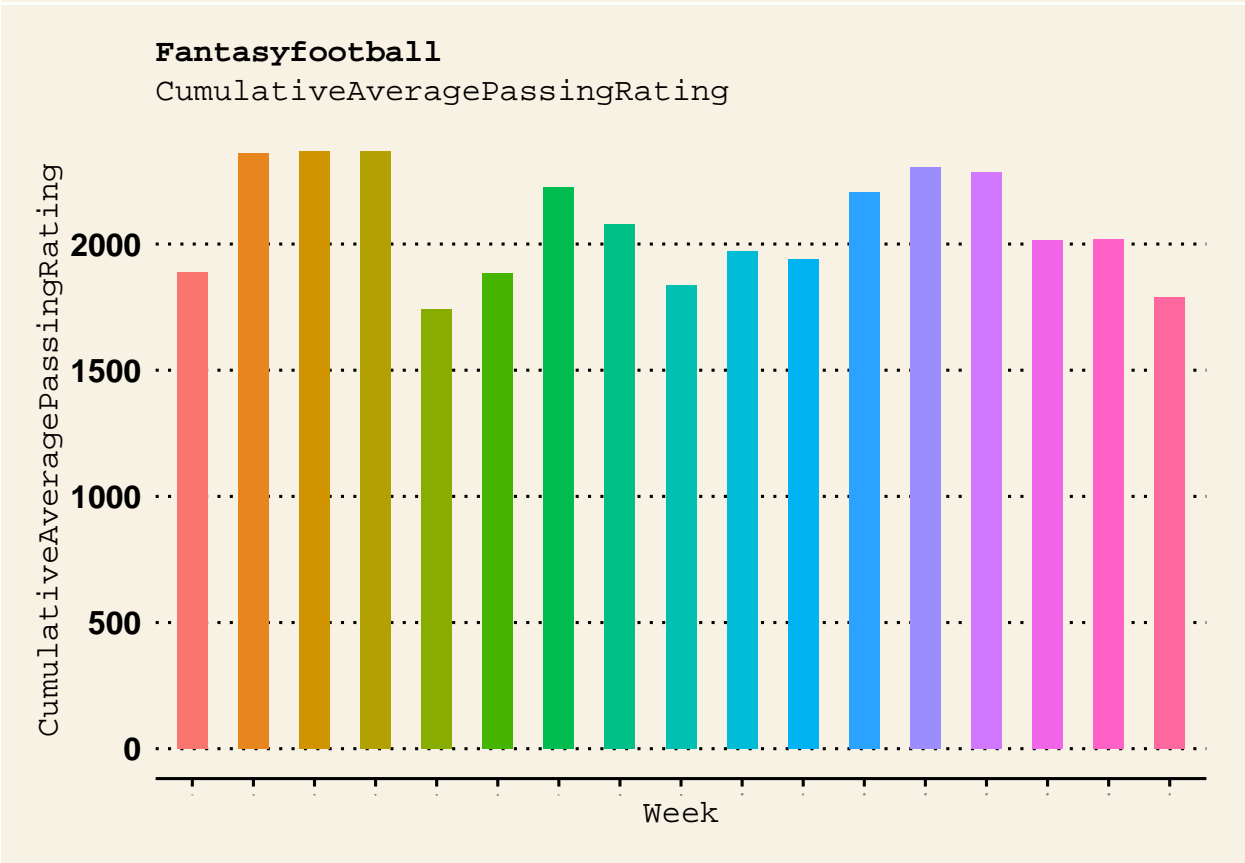
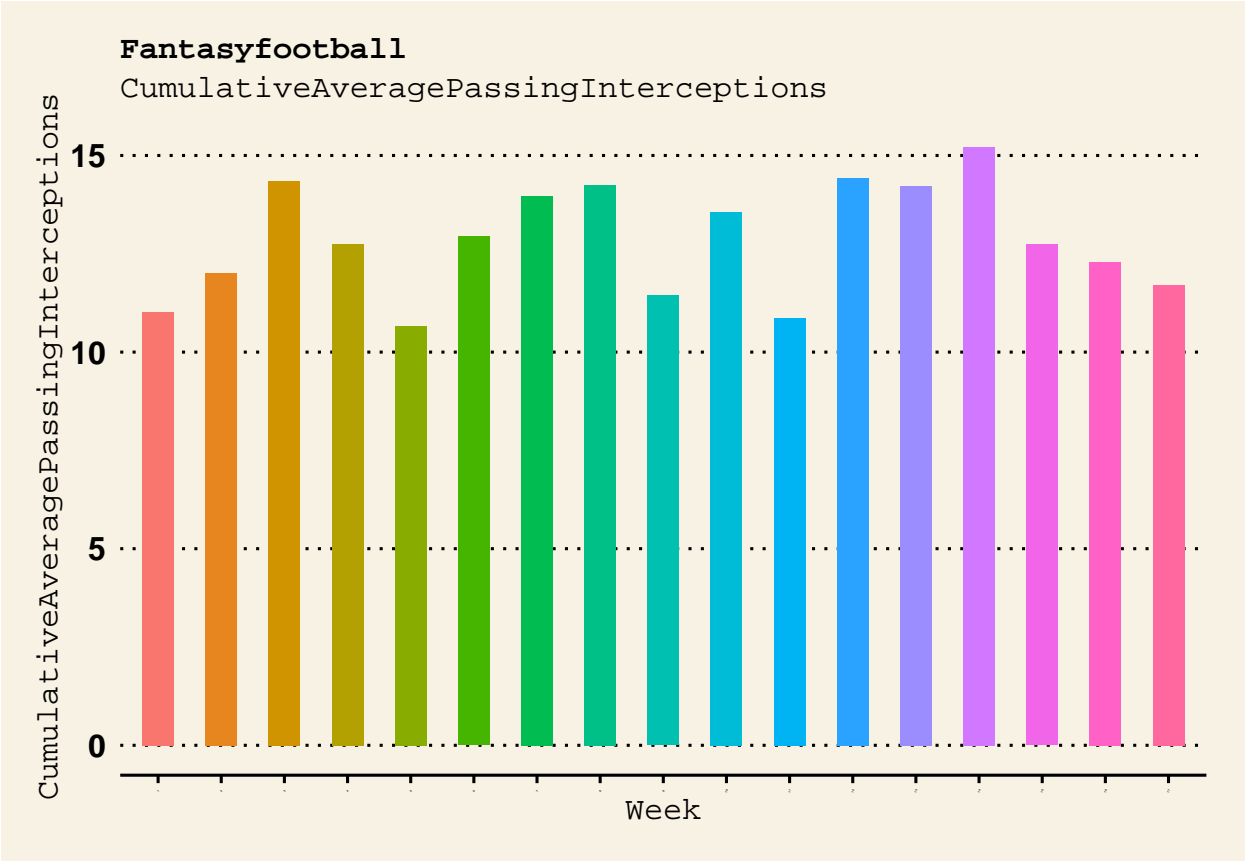


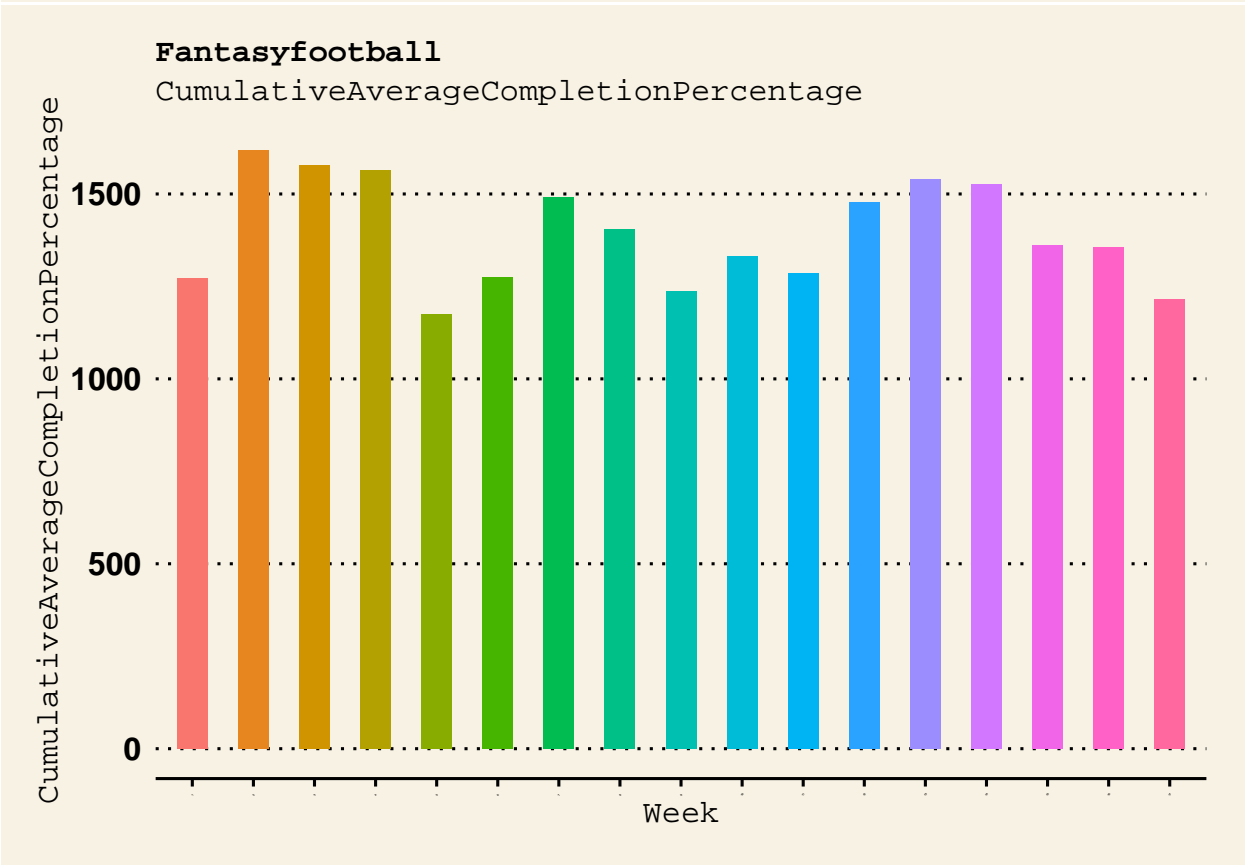
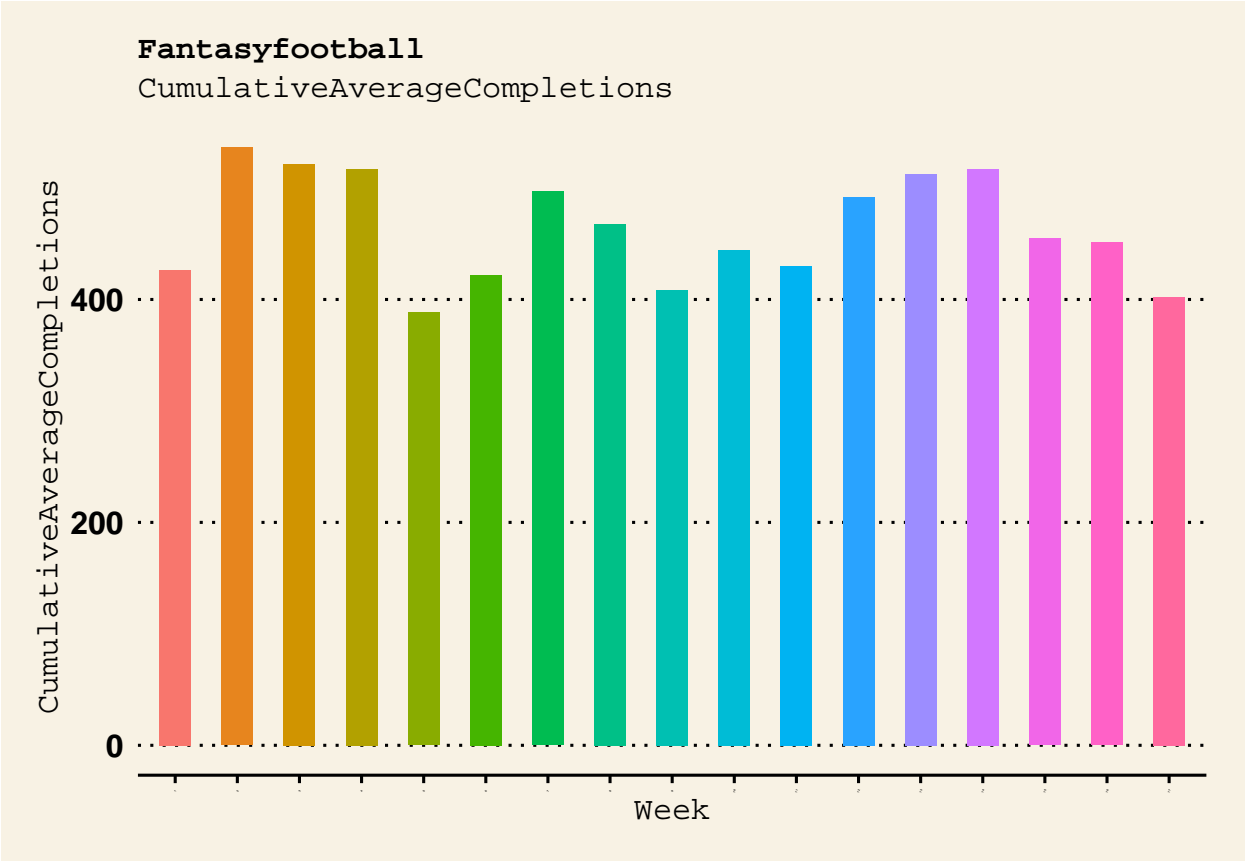
8.5 Bar plots Derived Feature set

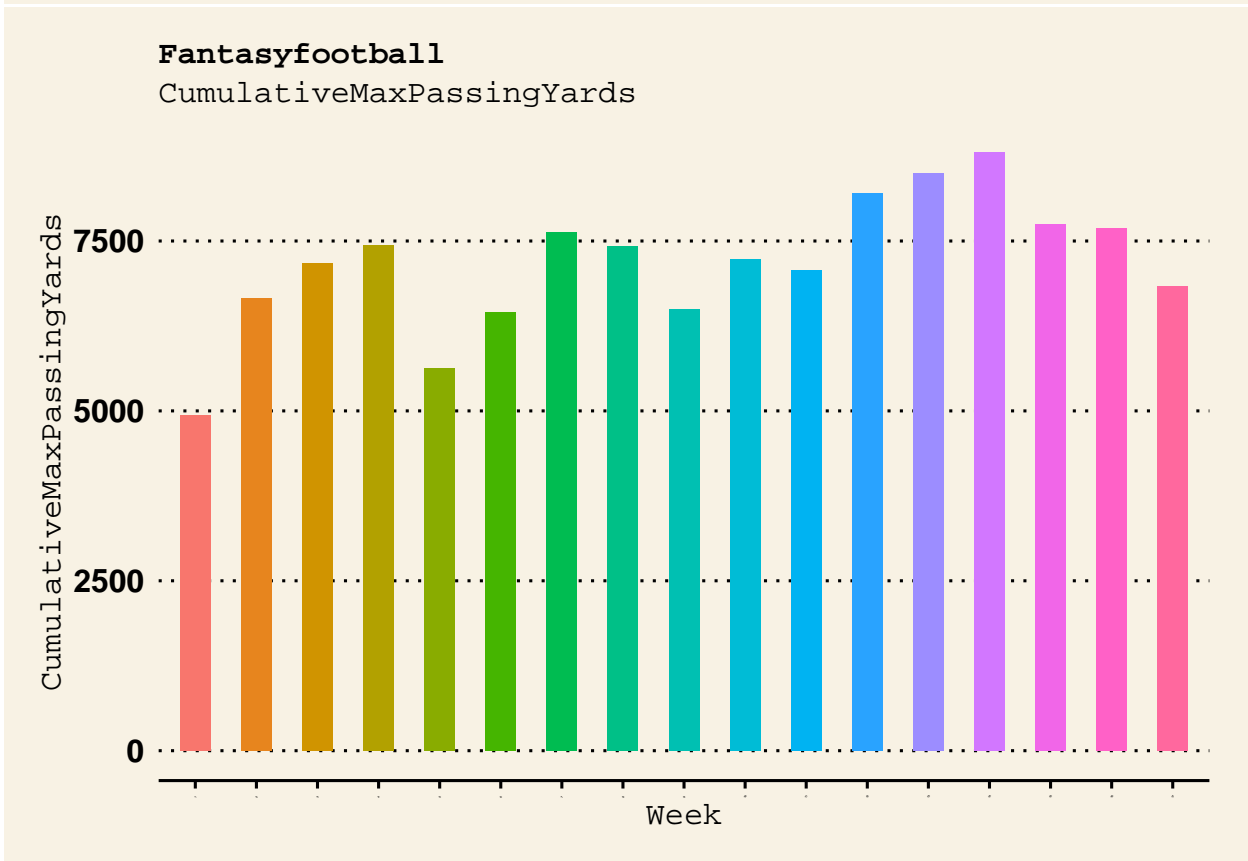
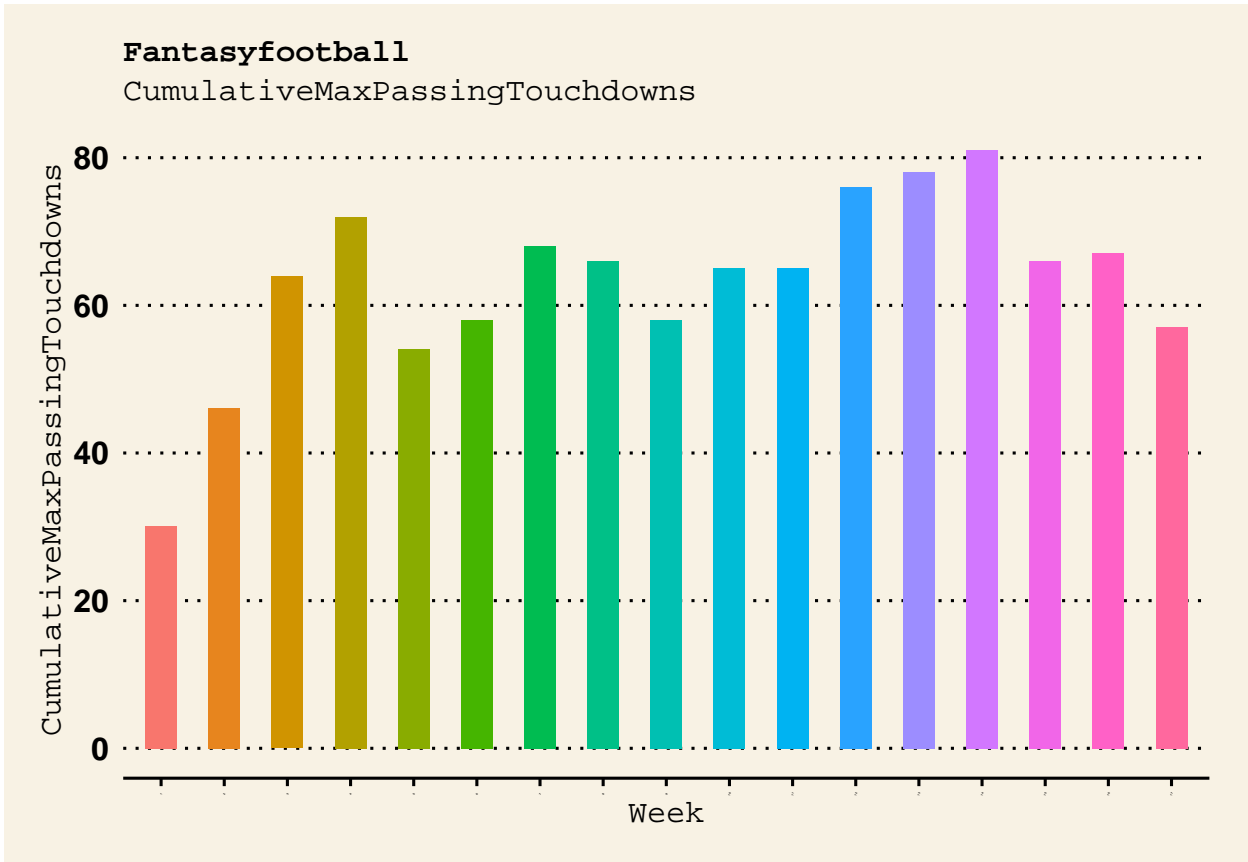
```
for(p in 2:20){
  bar_plot <- eda_derived %>%
    ggplot(aes_string(x="Week",
                      y=names(eda_derived[p]),
                      fill="Week",group="Week"))+
    ggtitle(names(eda_derived[p]))+
    geom_bar(stat="identity", width=.5, show.legend = FALSE)+
    xlab("Week")+
    ylab(names(eda_derived[p]))+
    labs(title="Fantasyfootball",
         subtitle=names(eda_derived[p]),
         aption="Source: Fantasyfootball")+
    theme_wsj()+
    theme(plot.title = element_text(size = rel(0.5)),
          plot.subtitle = element_text(size = rel(0.5)),
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),
          axis.title = element_text(size = rel(0.5)),
          legend.position = "right",
          legend.direction = "vertical",
          legend.title = element_text(size = rel(0.5)))
  print(bar_plot)
}
```

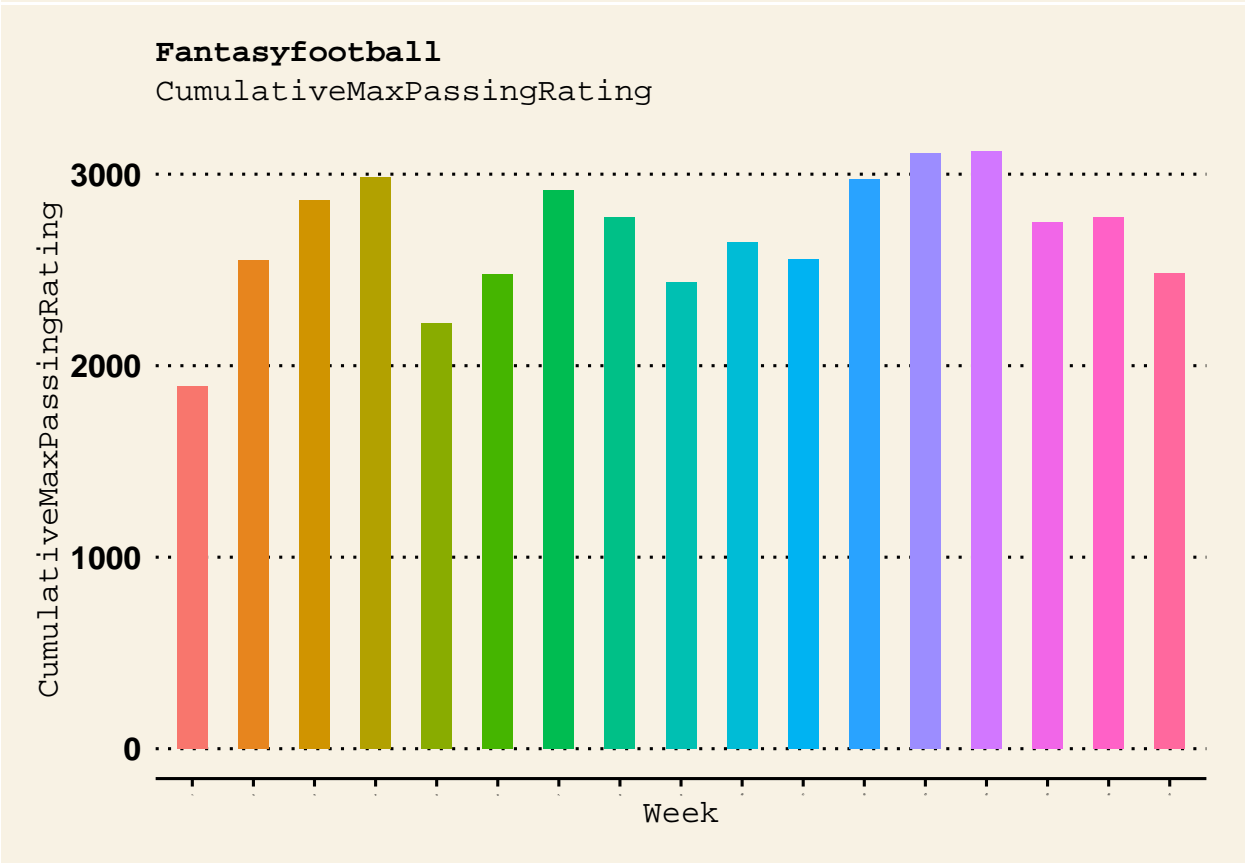
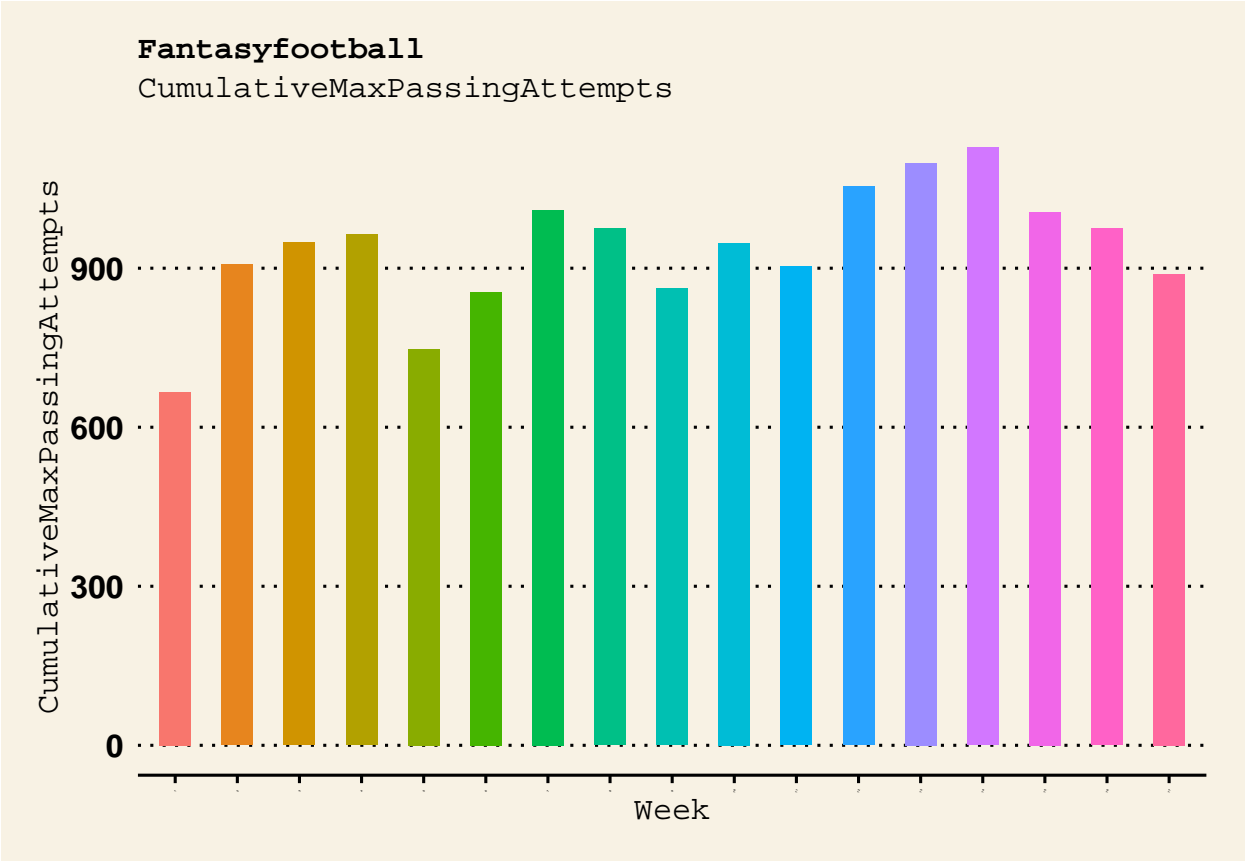


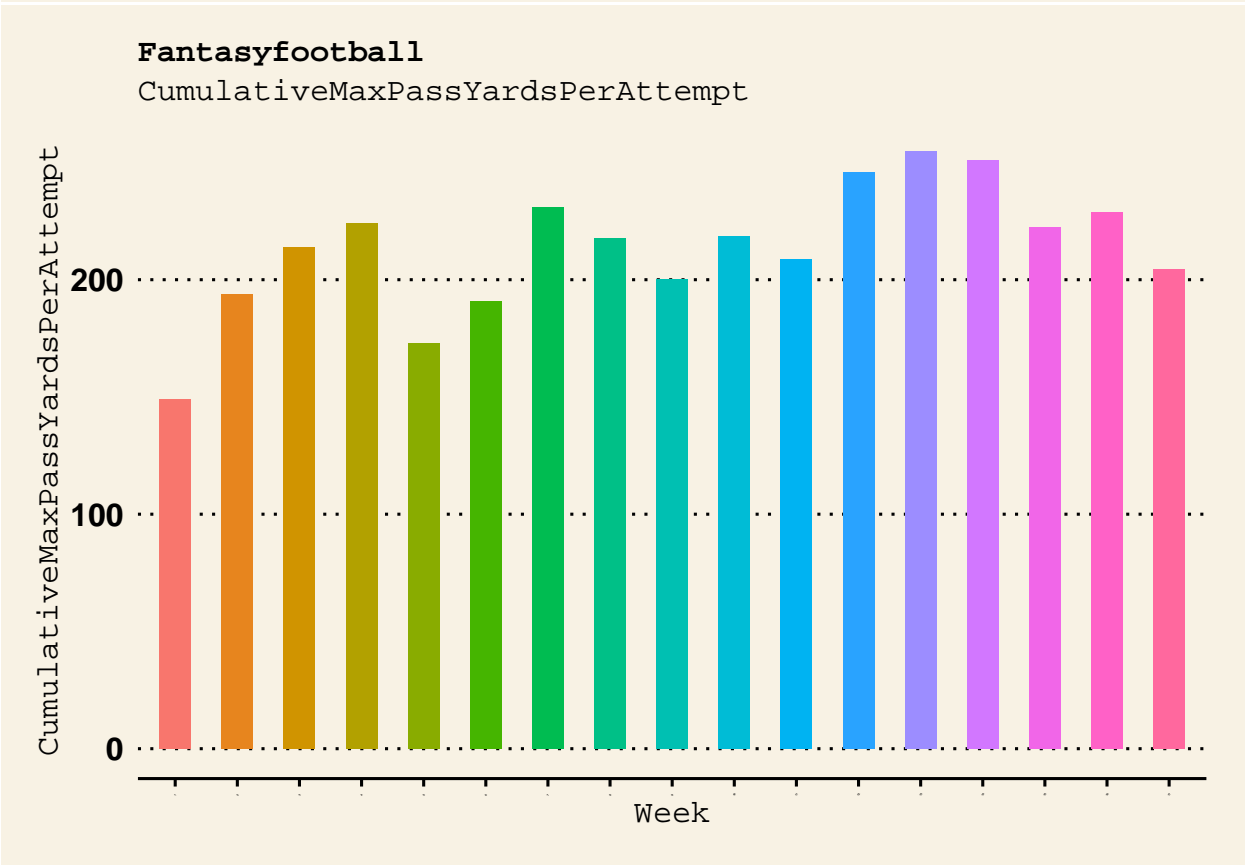
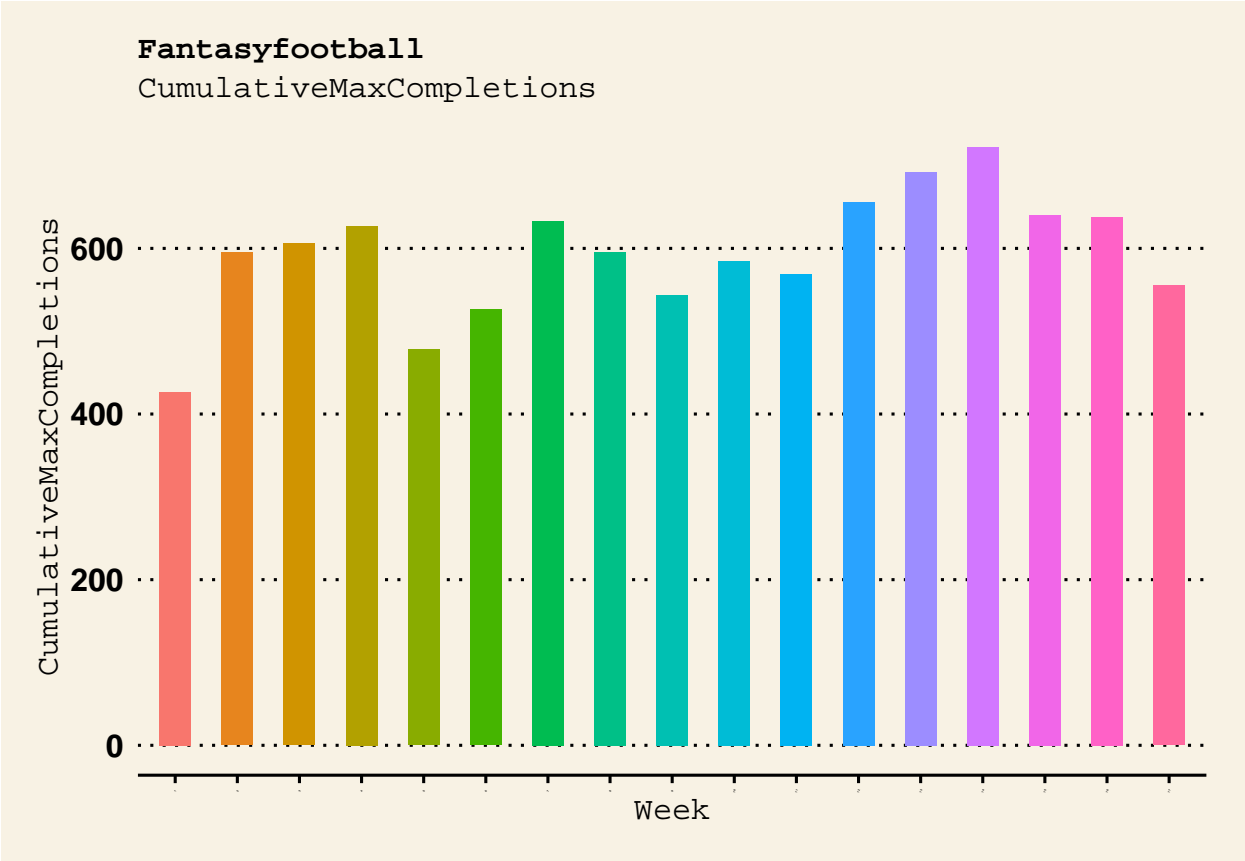


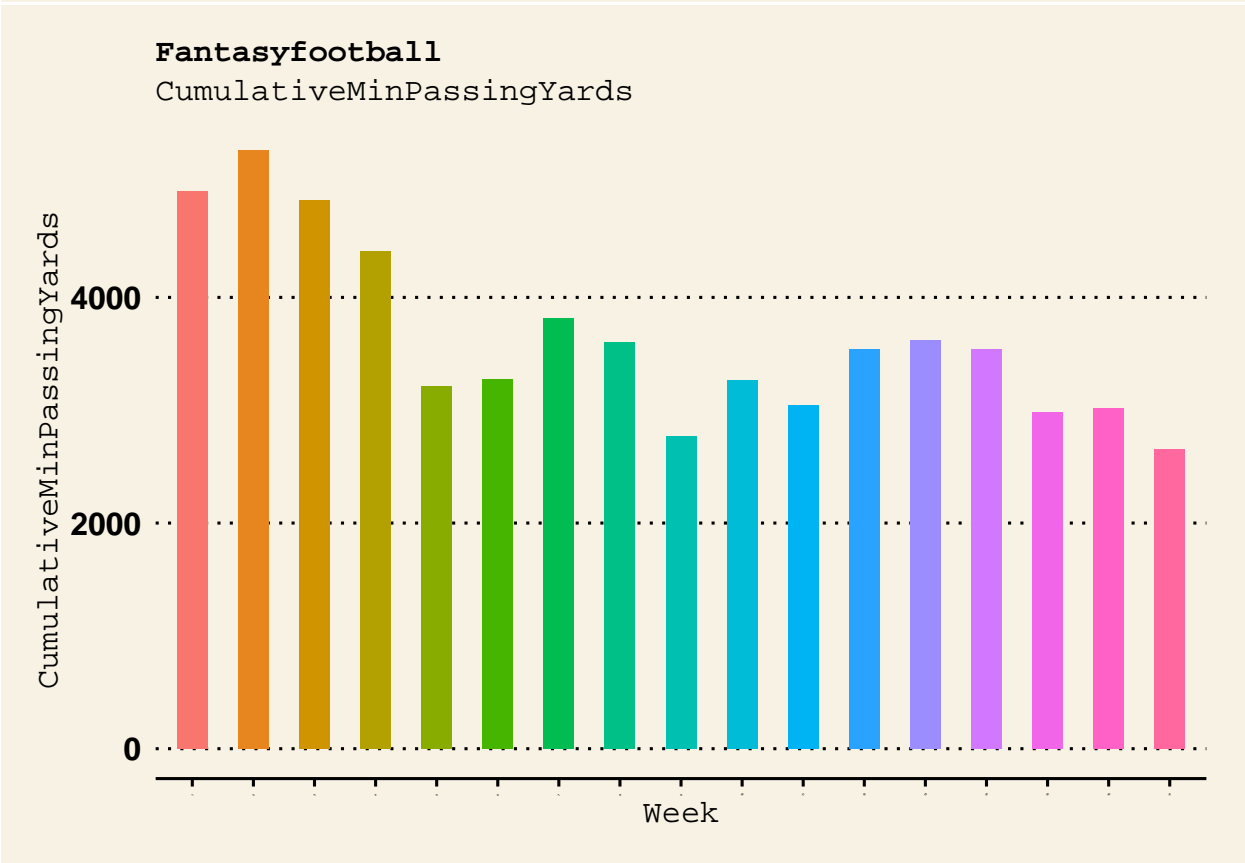
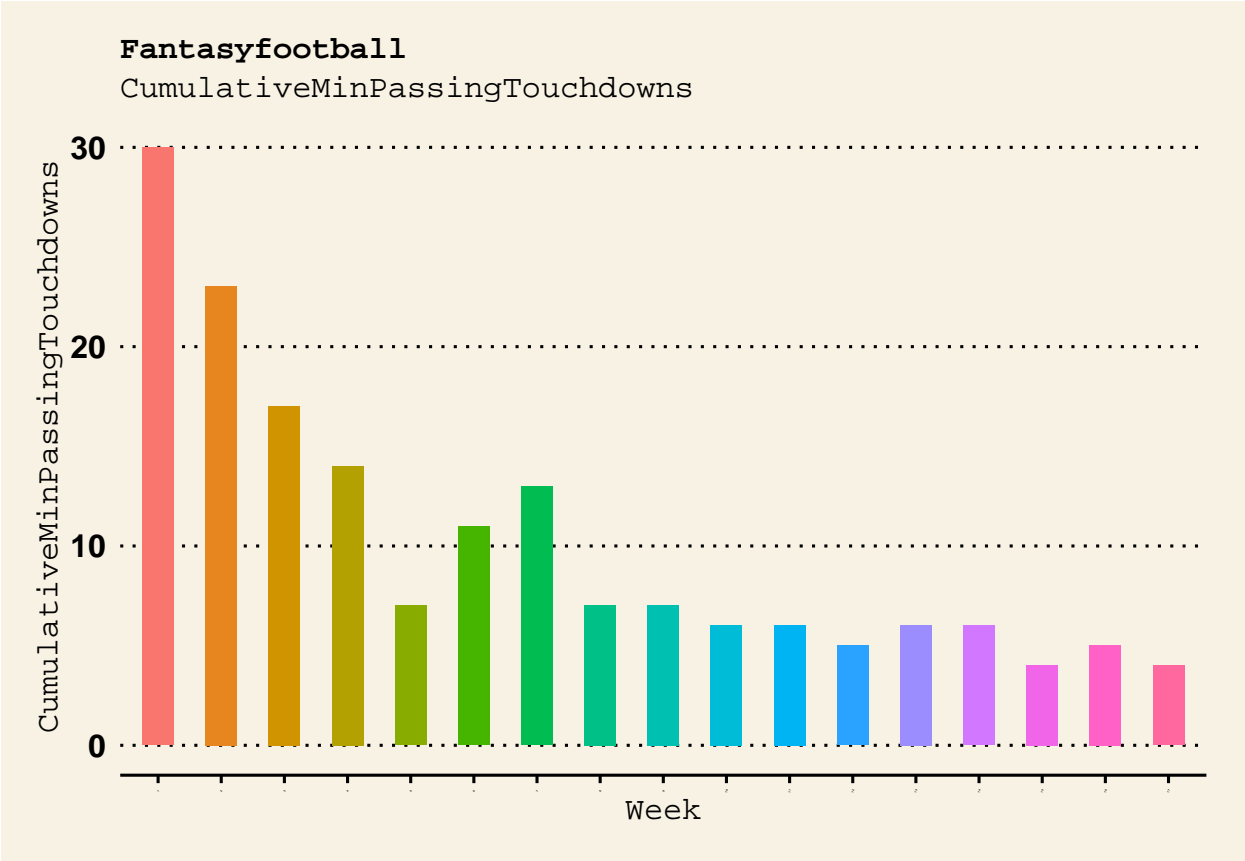


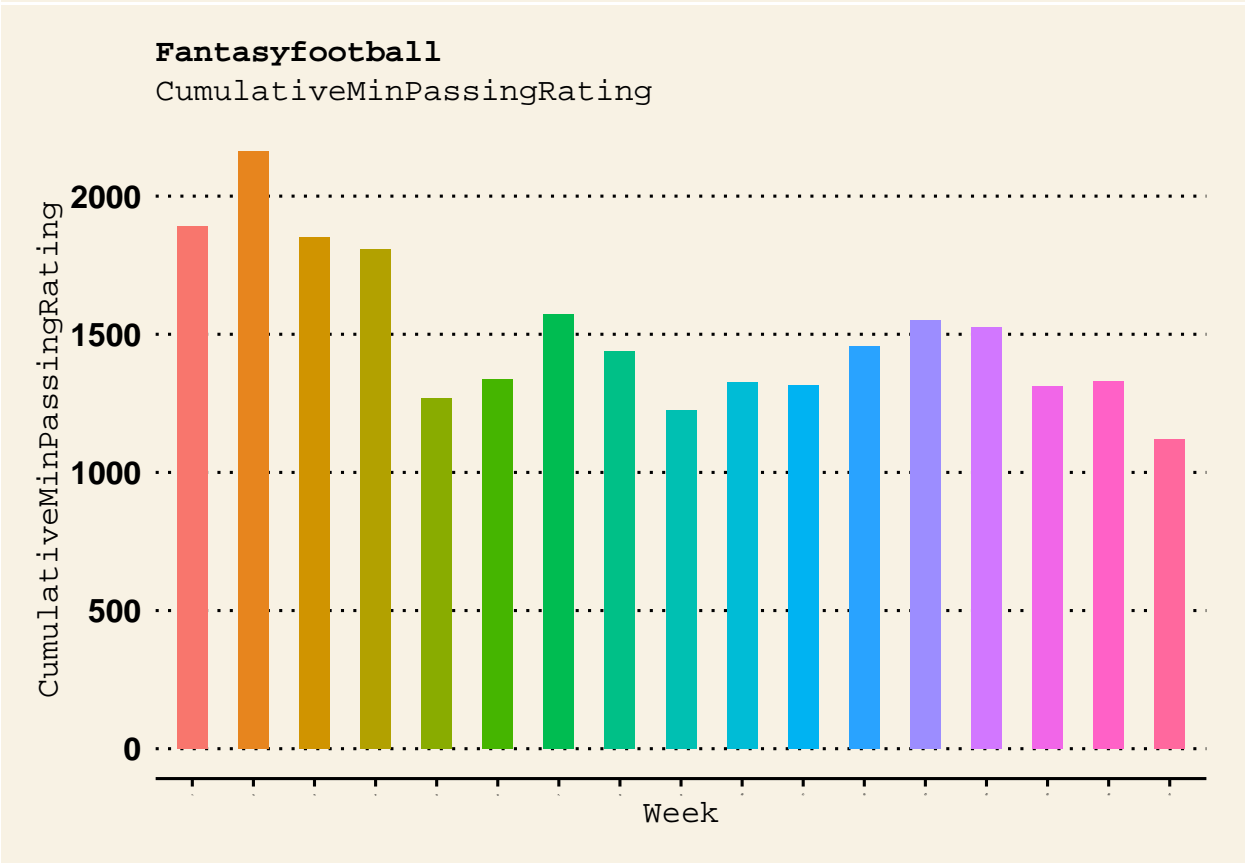
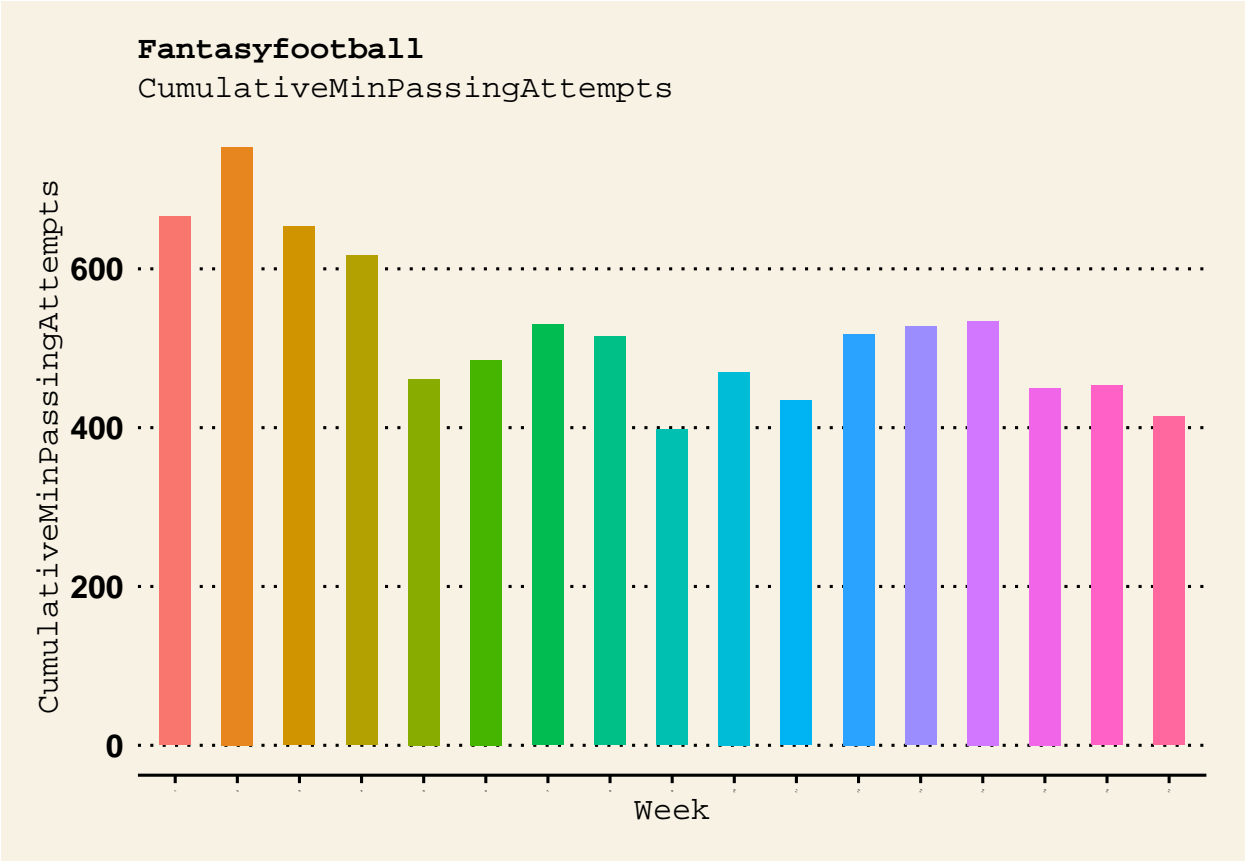


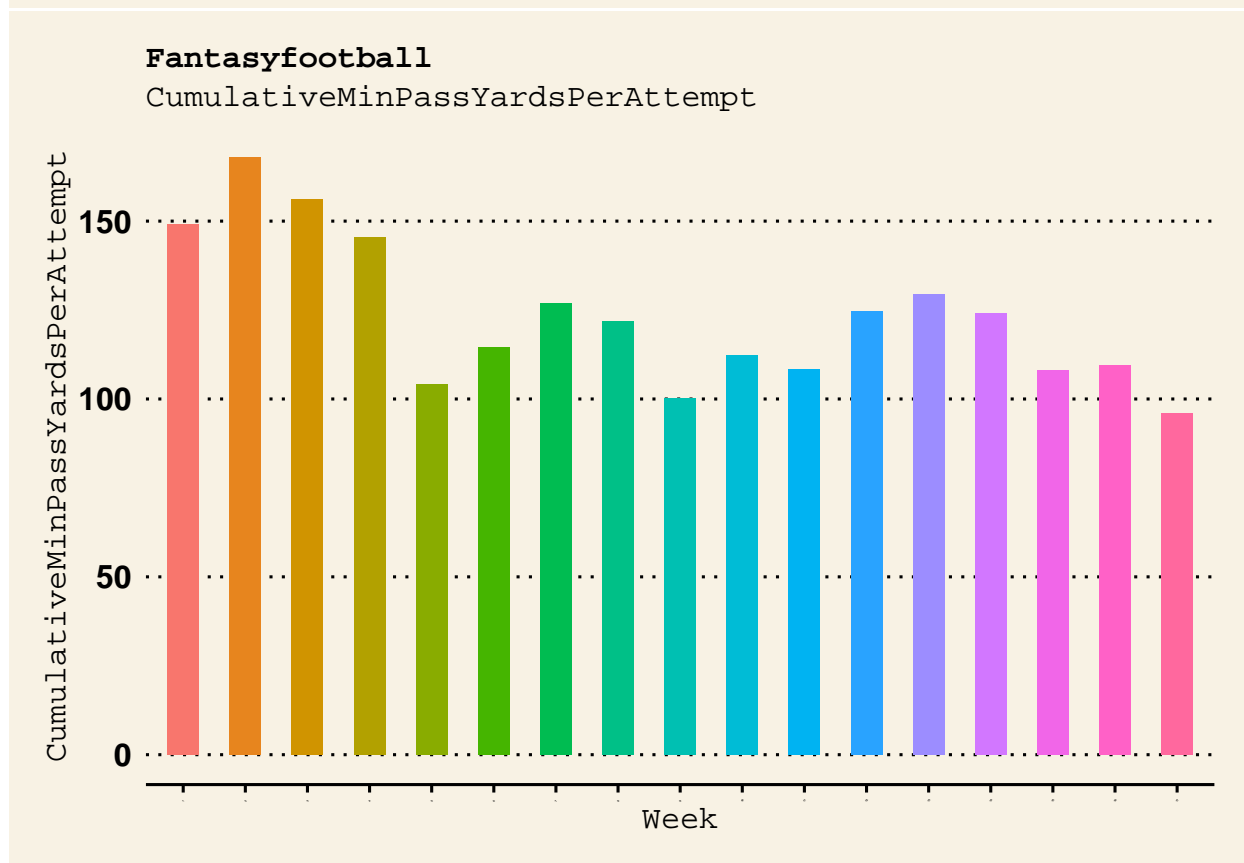
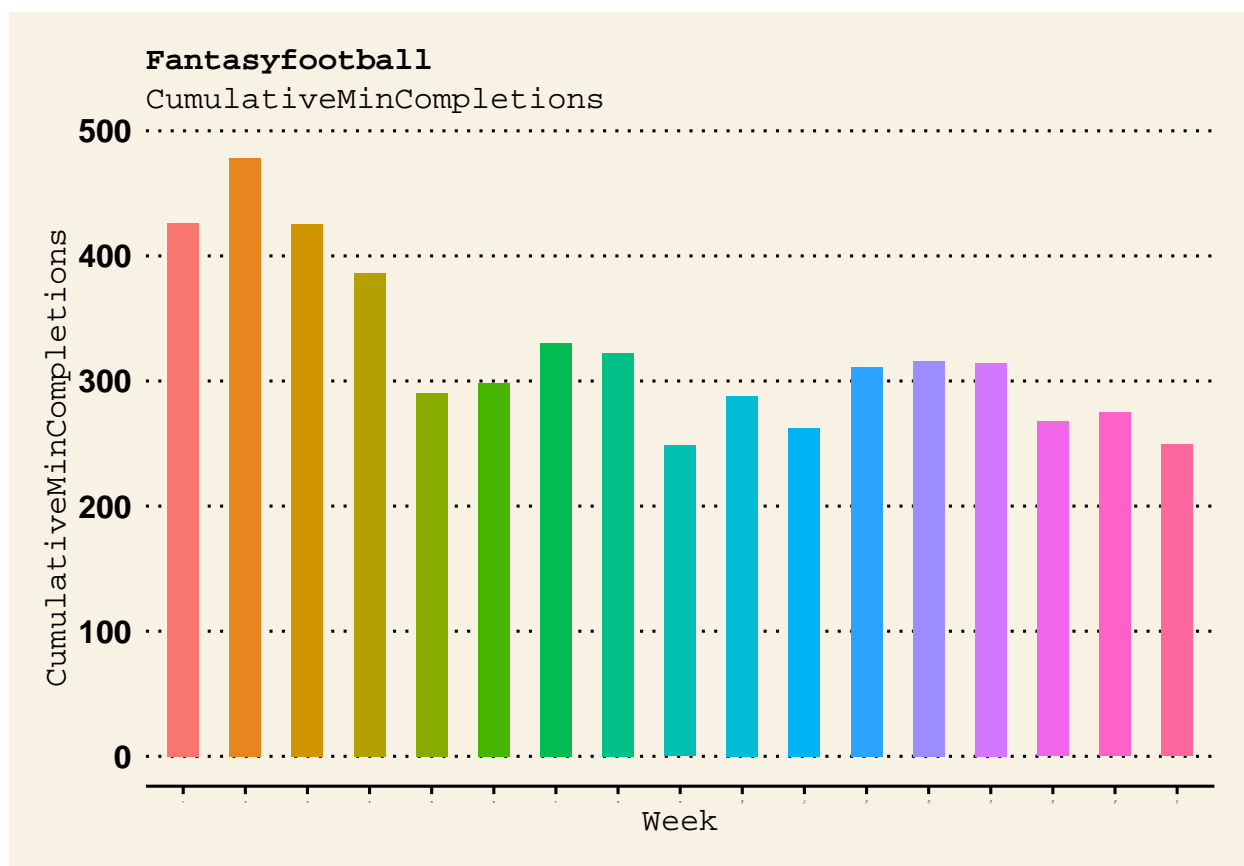










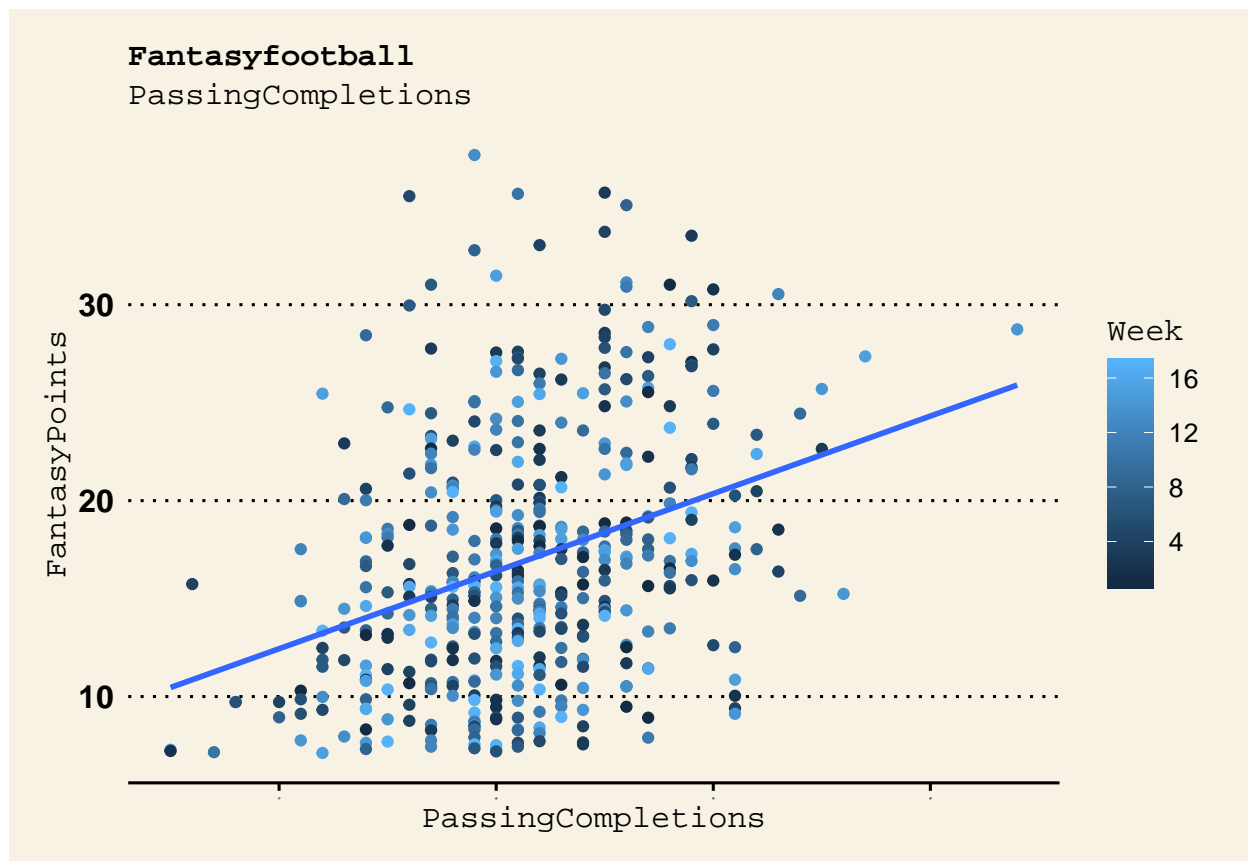


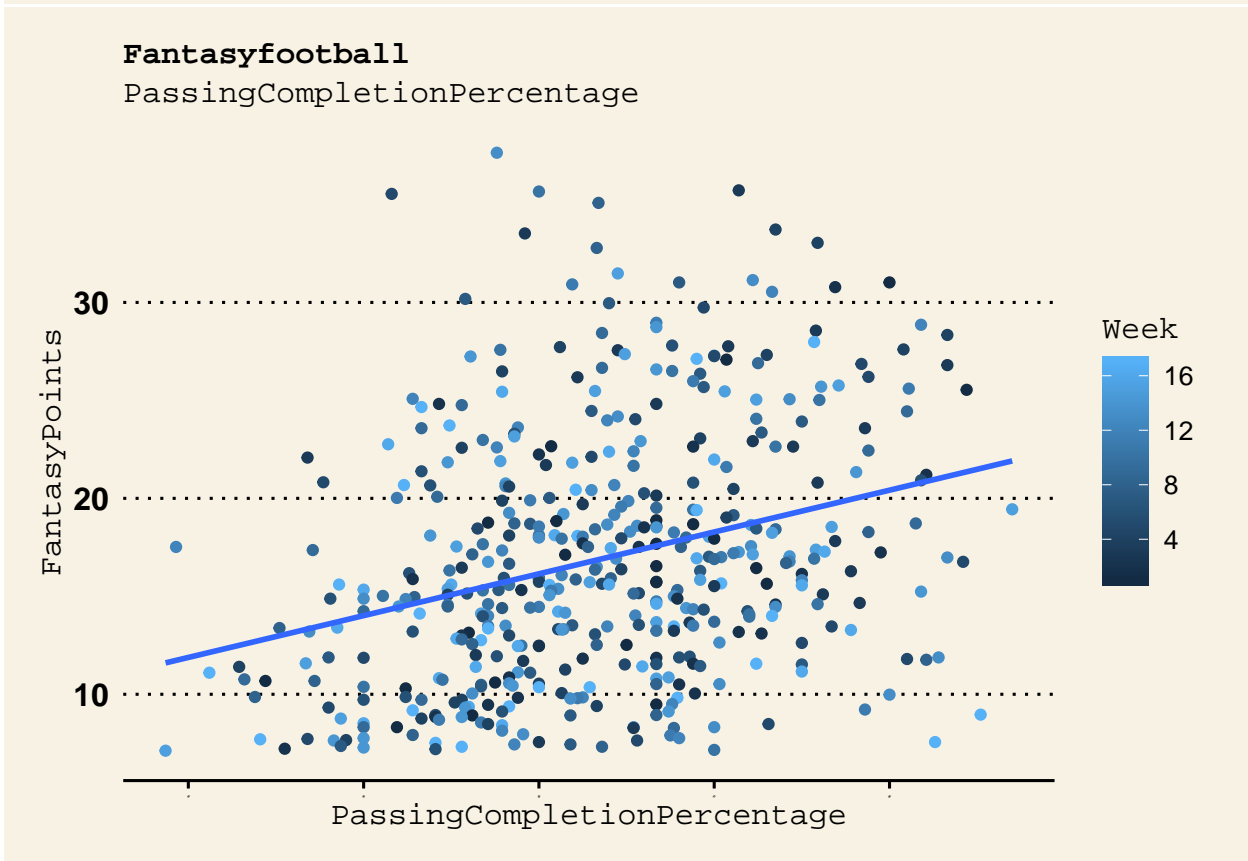
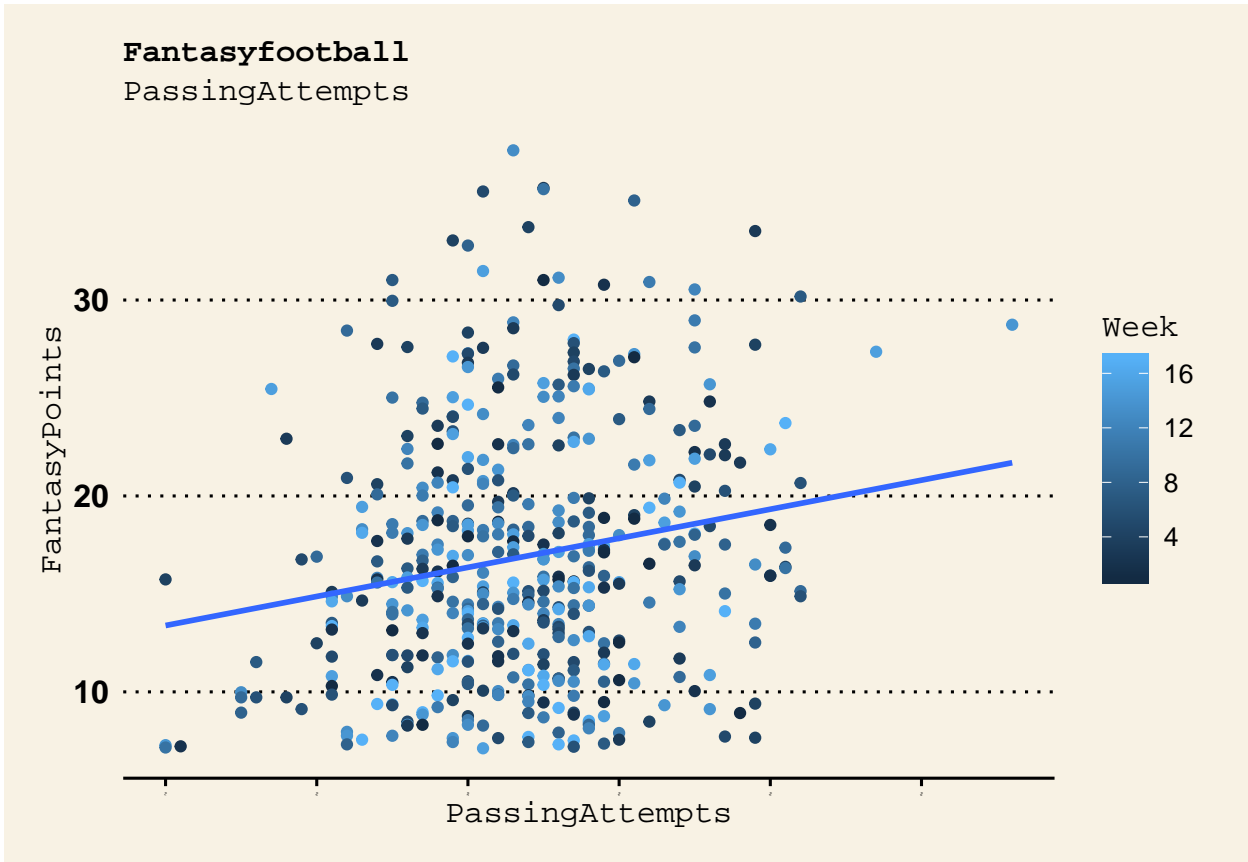
9 : Scatterplots

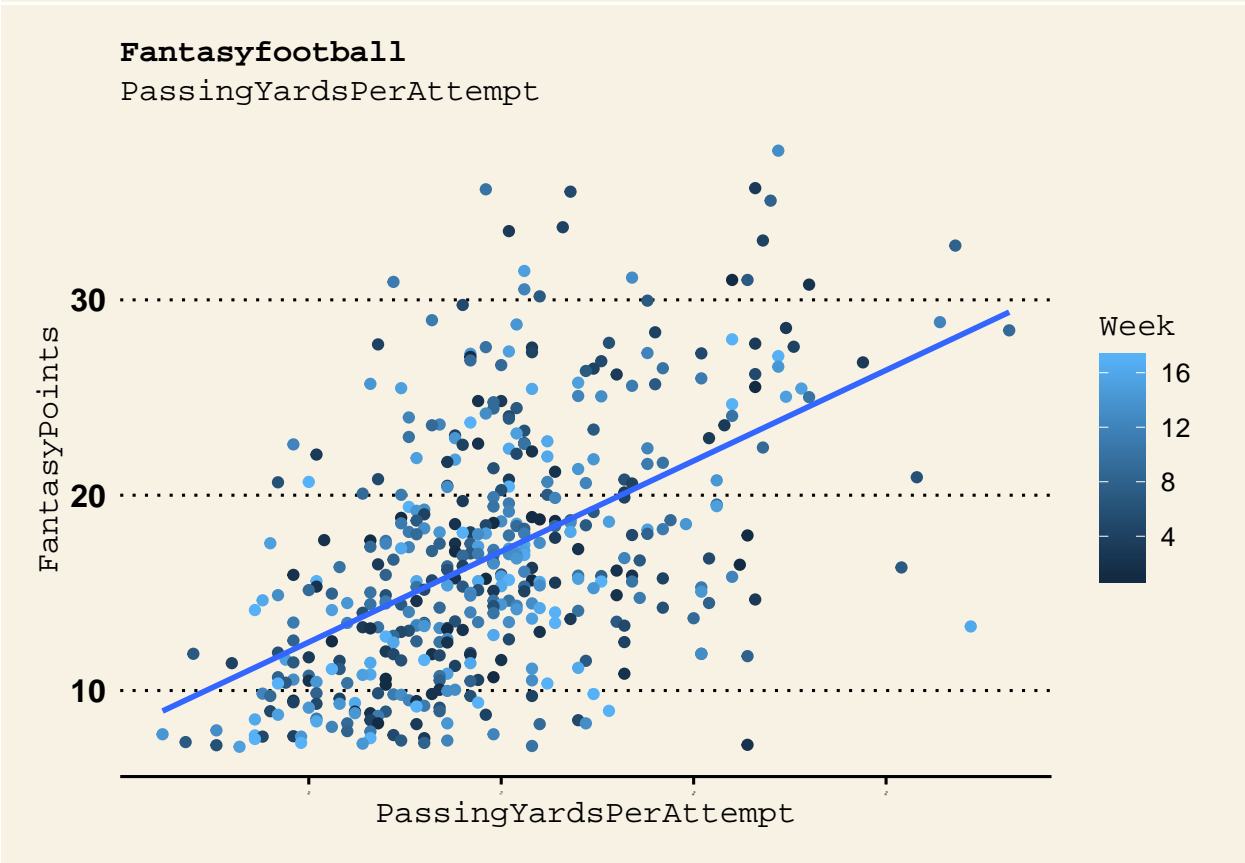
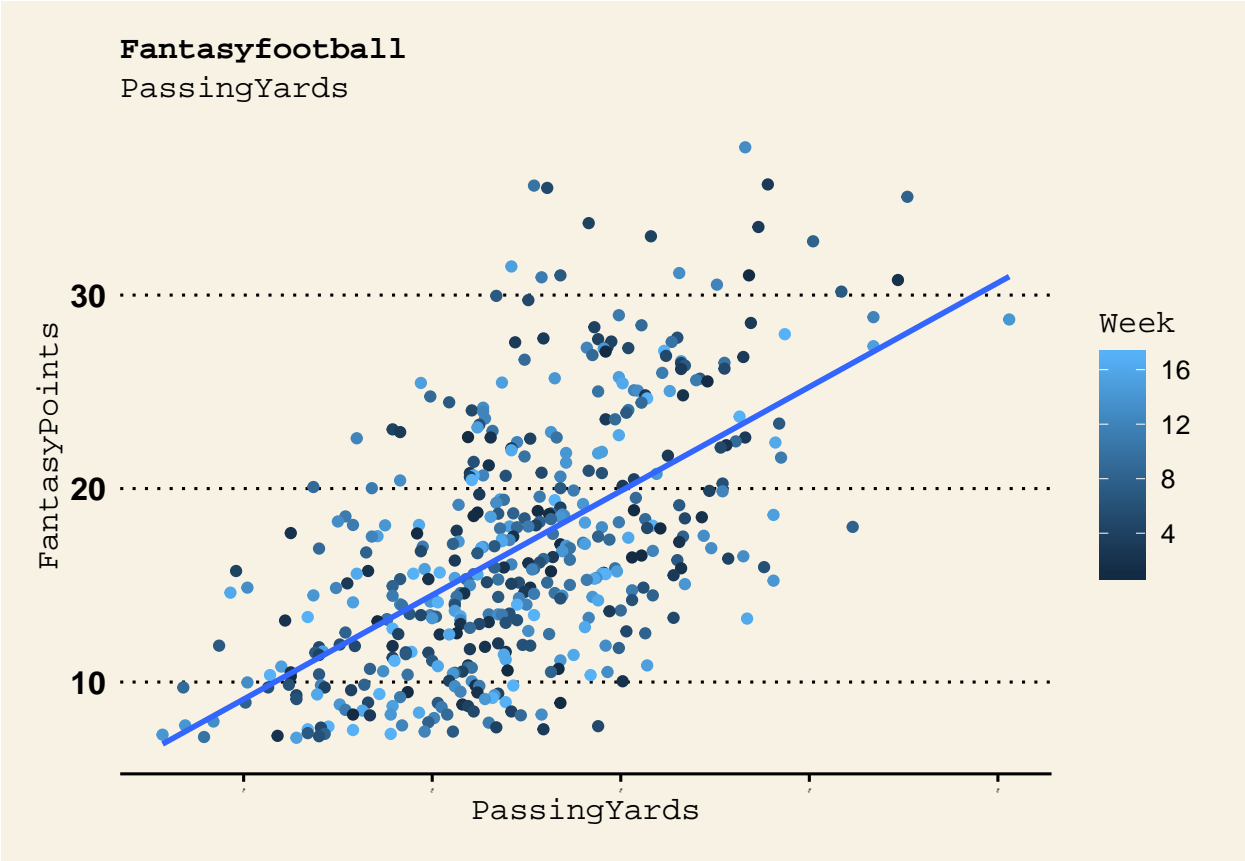
We are trying to capture what the NEXT value for fantasy points is likely to be - these are all going to be for the current week since the fantasy score is a linear combination of the predictors for any given week. We need to shift the data before running these charts.

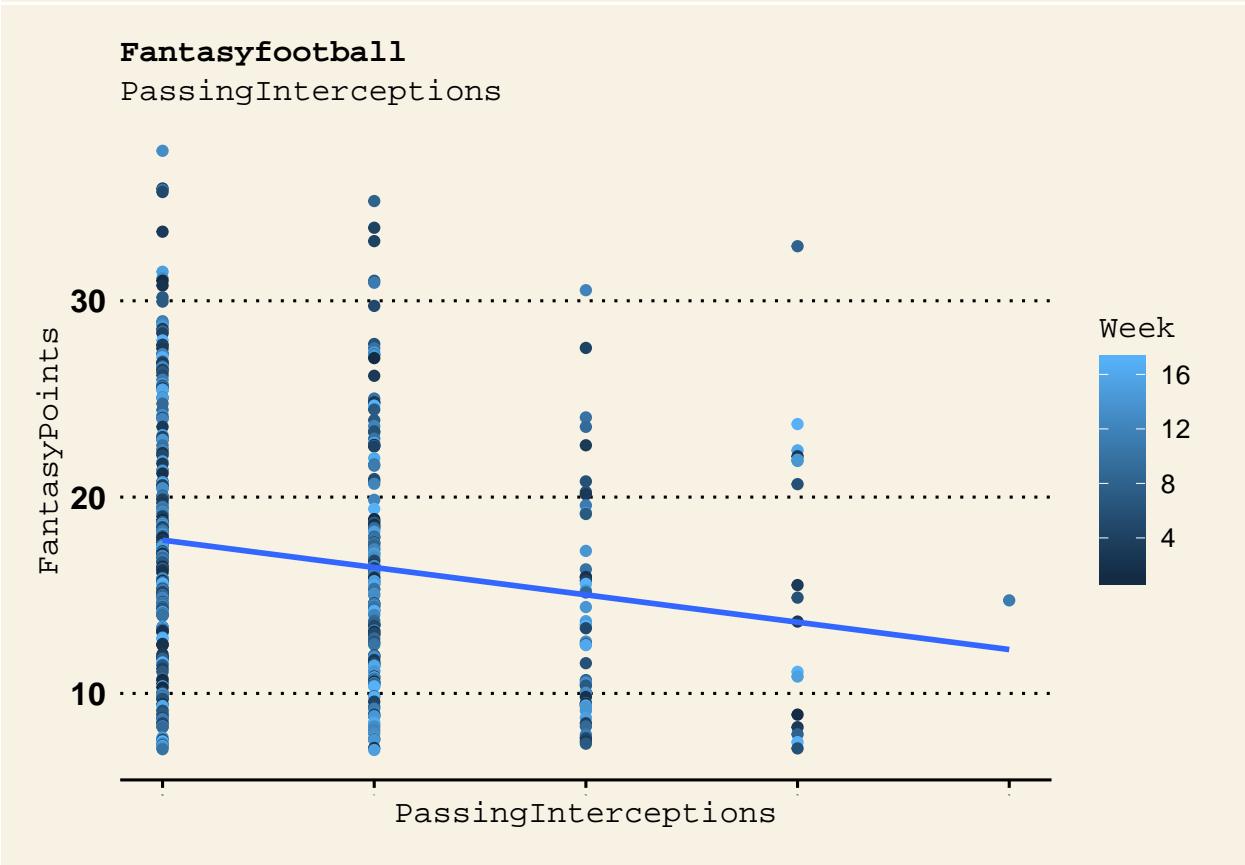
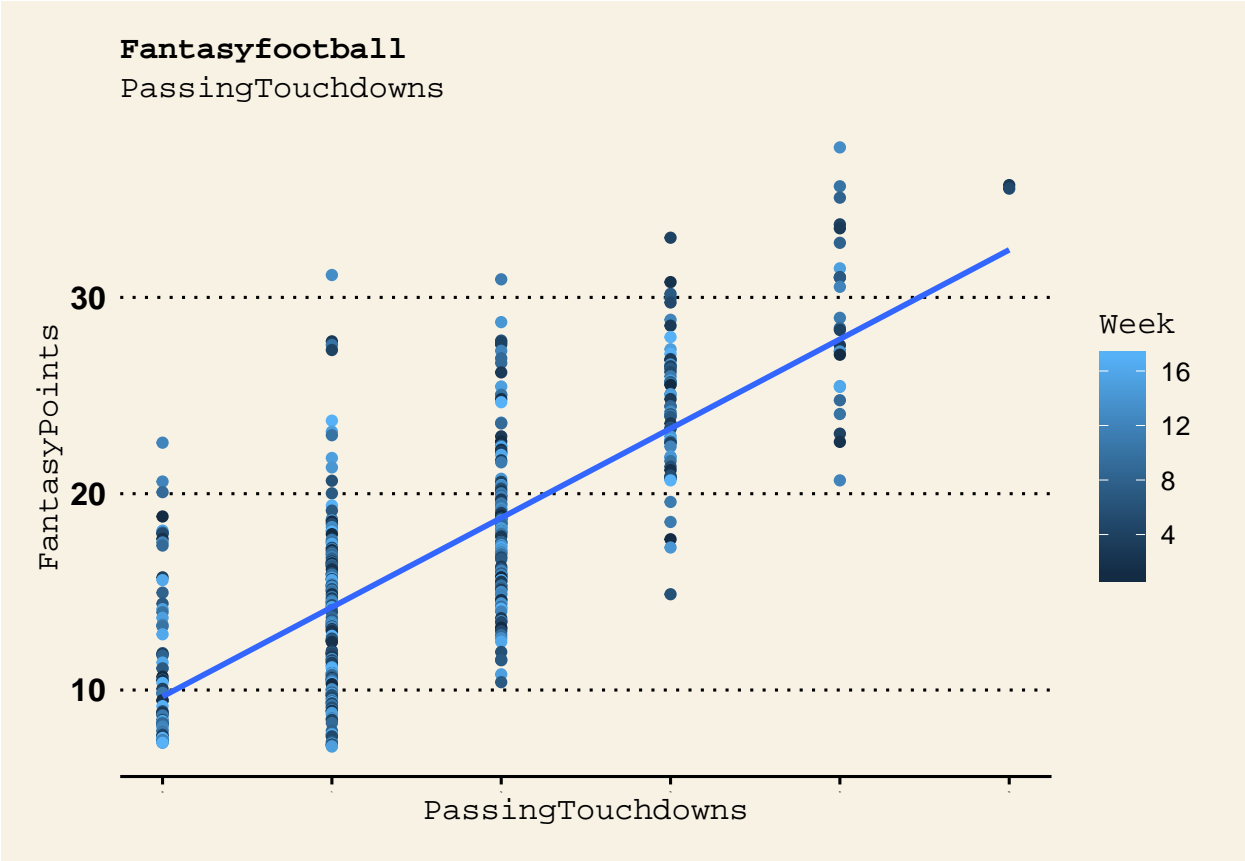
9.1 : Scatterplots for base features

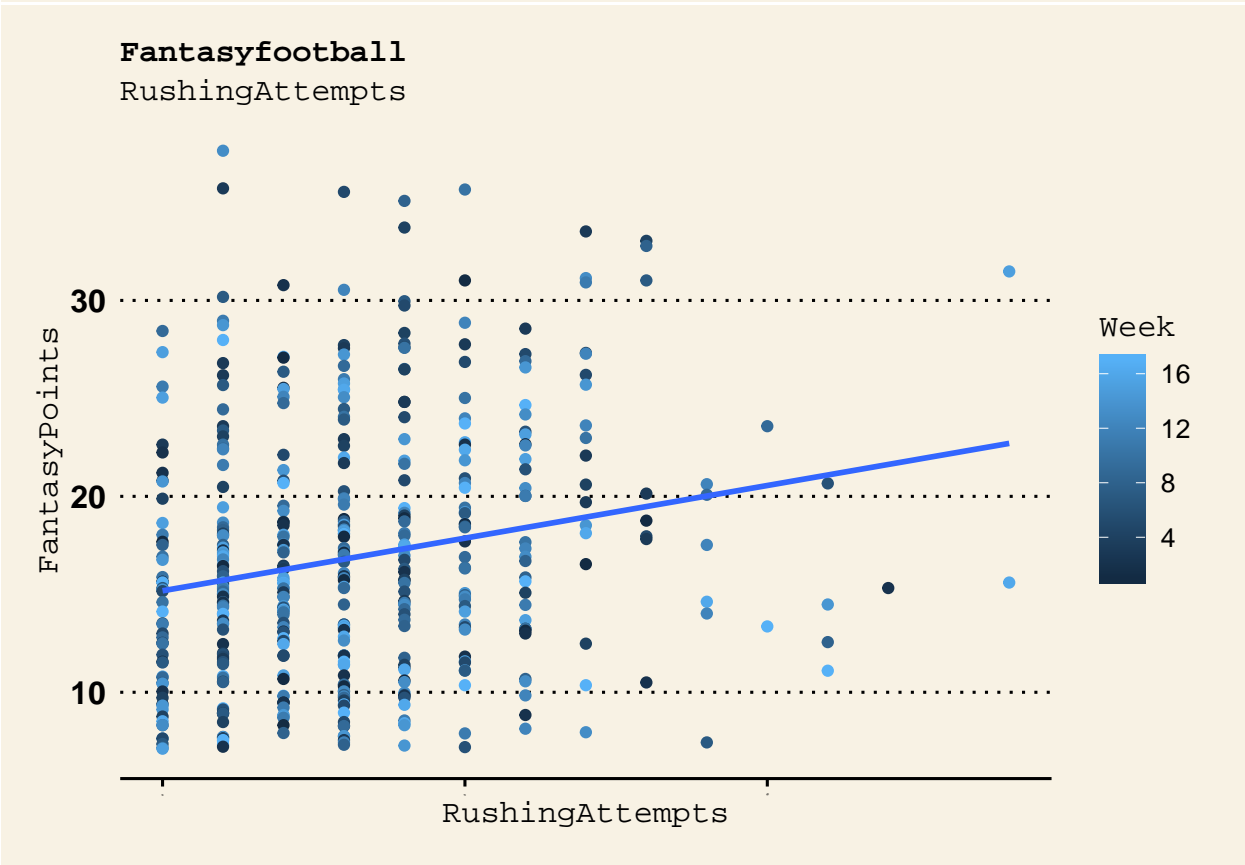
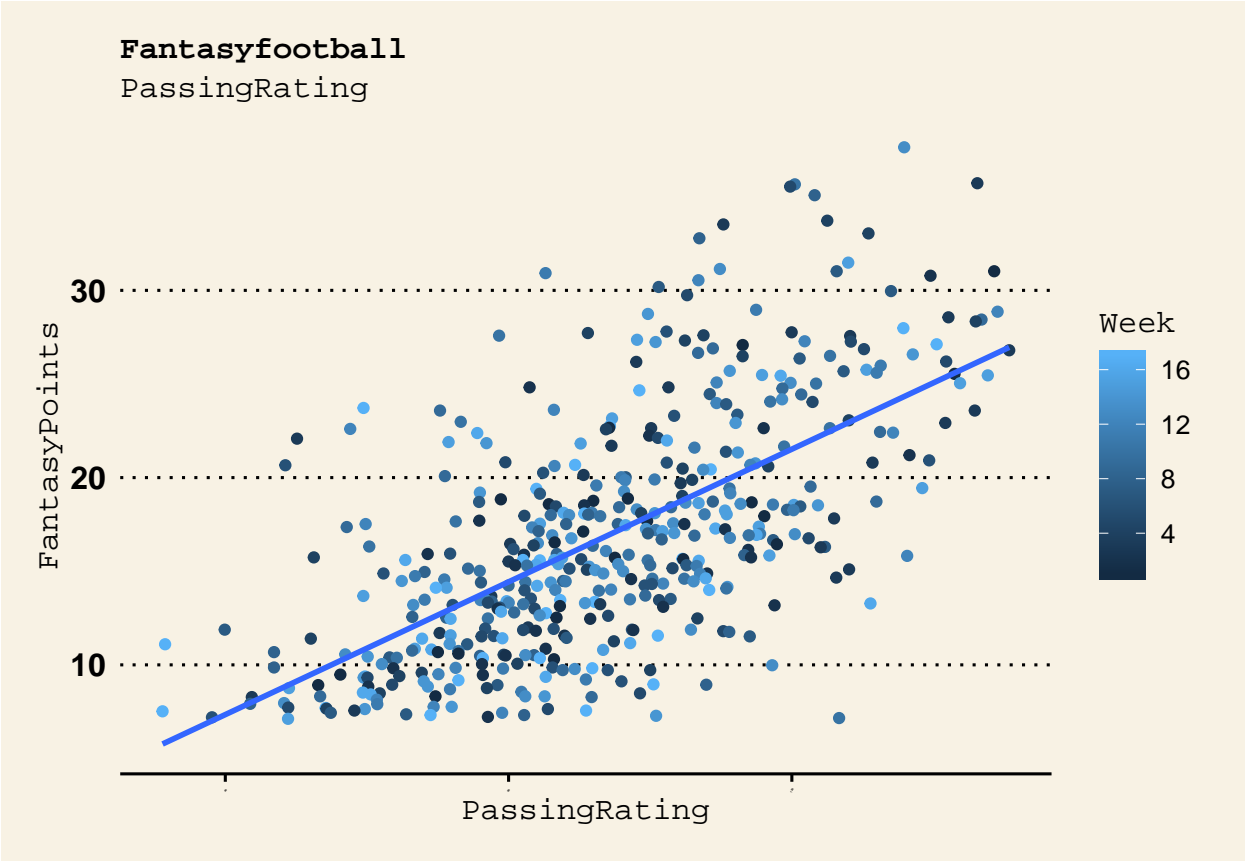
```
for (i in 3:15) {  
  base_scatter <- eda_base %>%  
    ggplot(aes_string(y="FantasyPoints",x=names(eda_base[i]),color="as.numeric(Week)")) +  
    geom_point()+geom_smooth(method="lm",se=F)+  
    labs(title="Fantasyfootball",  
         subtitle=names(eda_base[i]),  
         aption="Source: Fantasyfootball")+  
    labs(color="Week")+  
    theme_wsj()+  
    theme(plot.title = element_text(size = rel(0.5)),  
          plot.subtitle = element_text(size = rel(0.5)),  
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),  
          axis.title = element_text(size = rel(0.5)),  
          legend.position = "right",  
          legend.direction = "vertical",  
          legend.title = element_text(size = rel(0.5)))  
  print(base_scatter)  
}
```

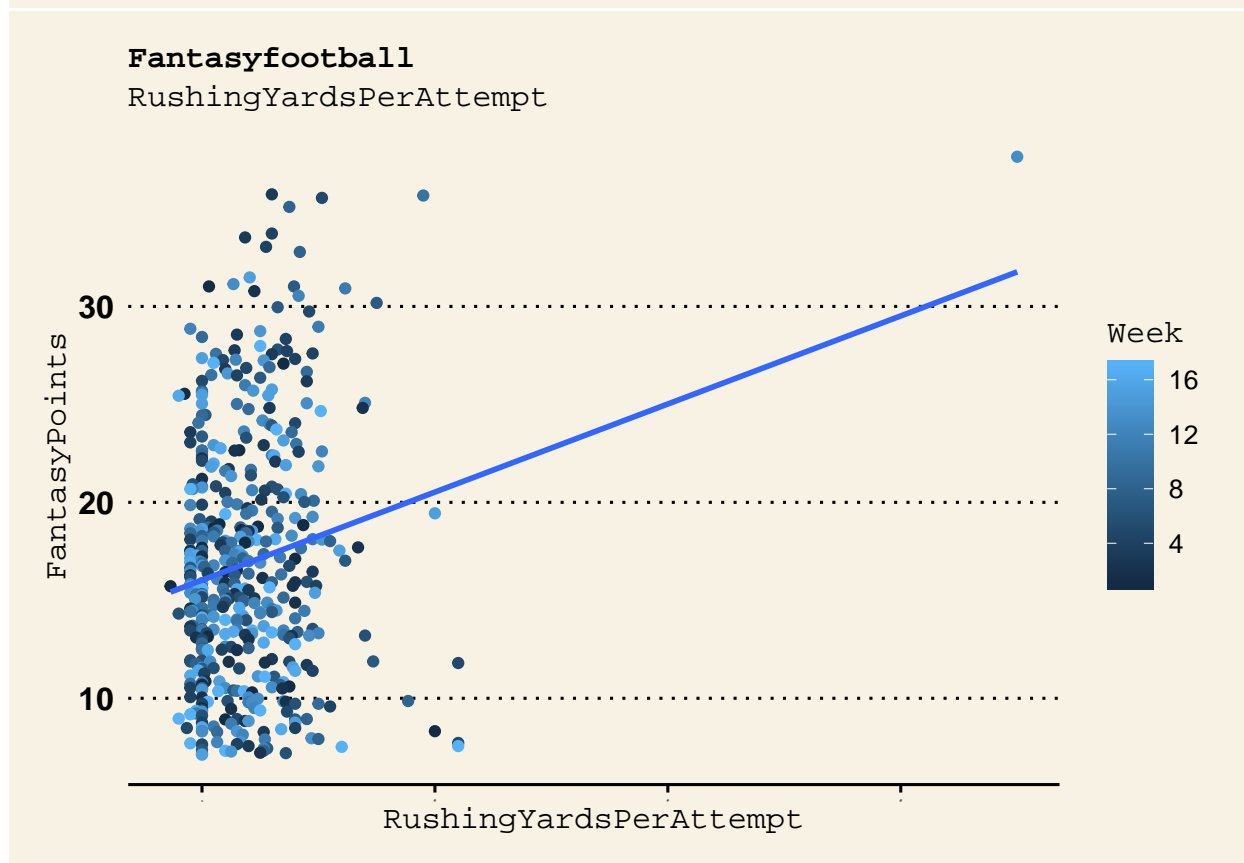
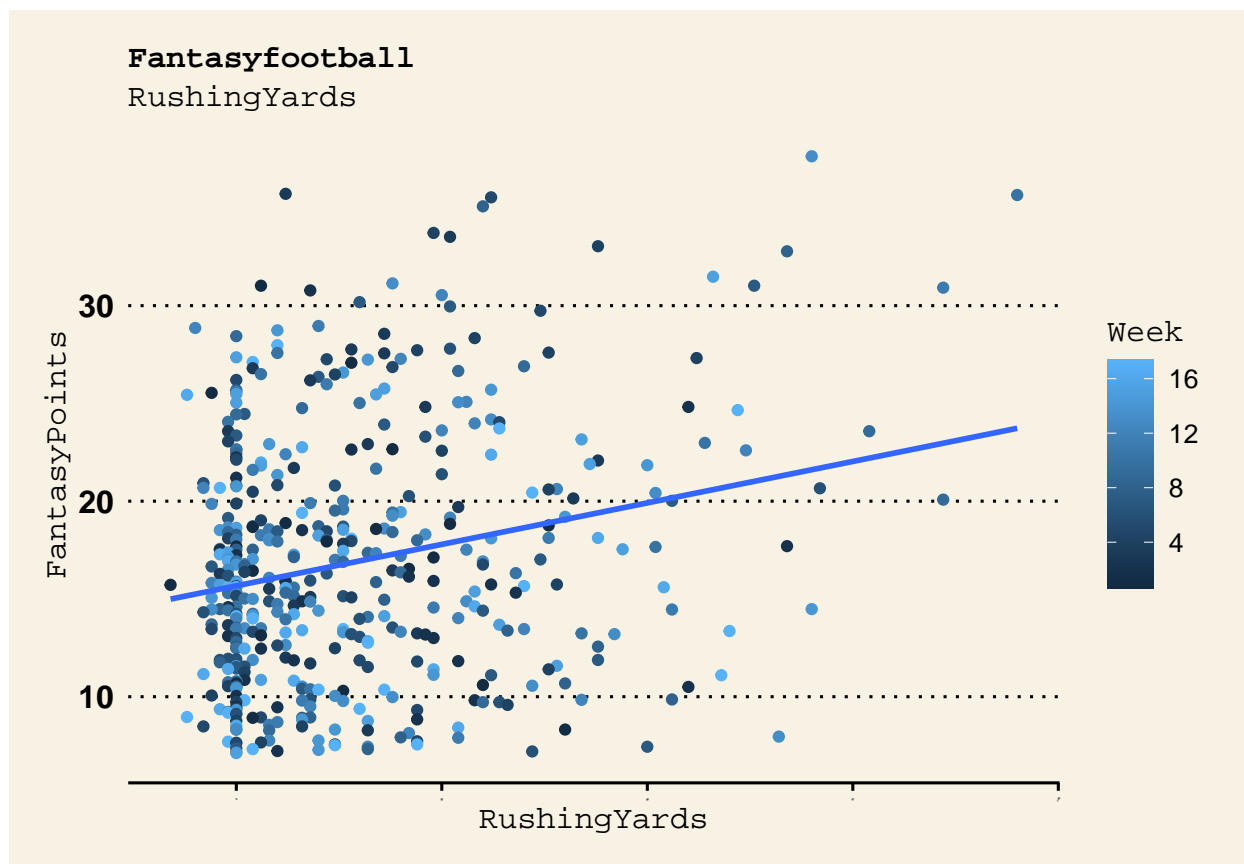


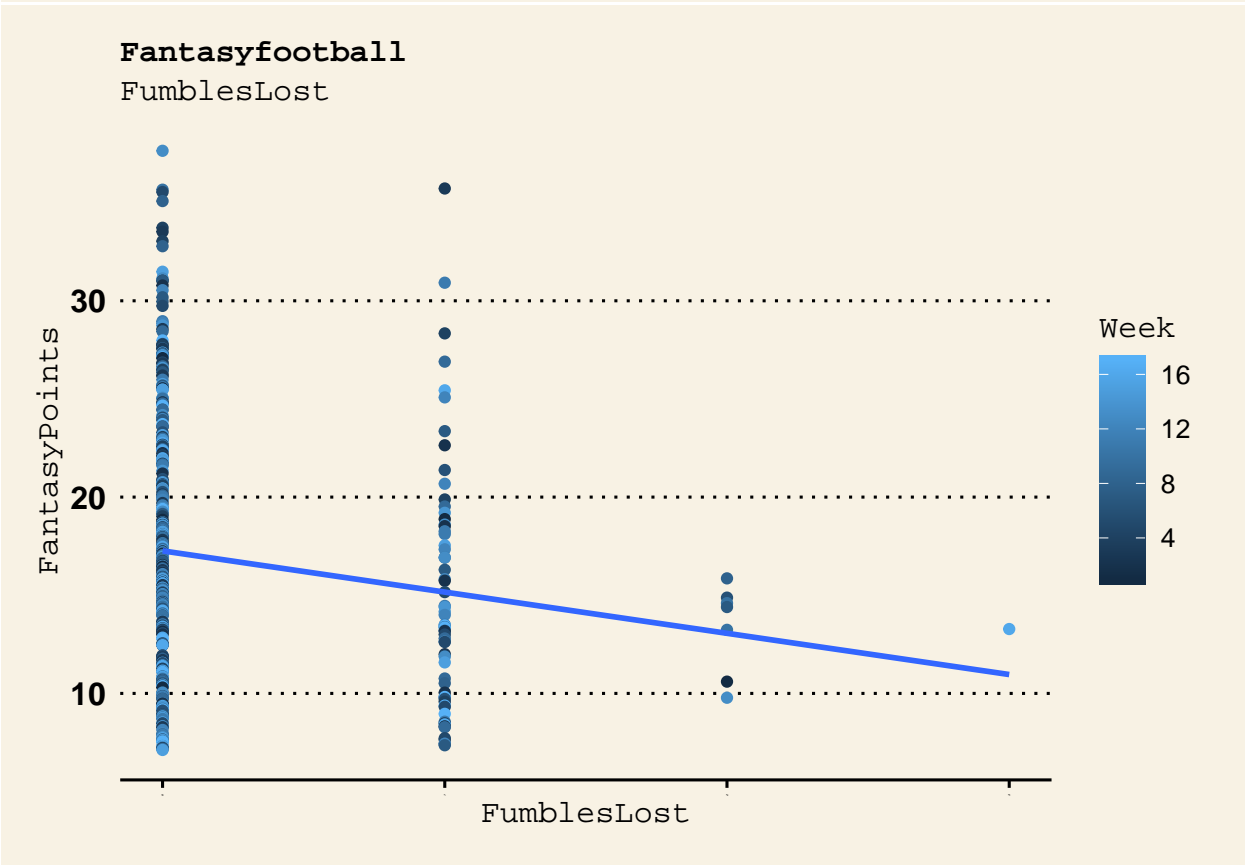
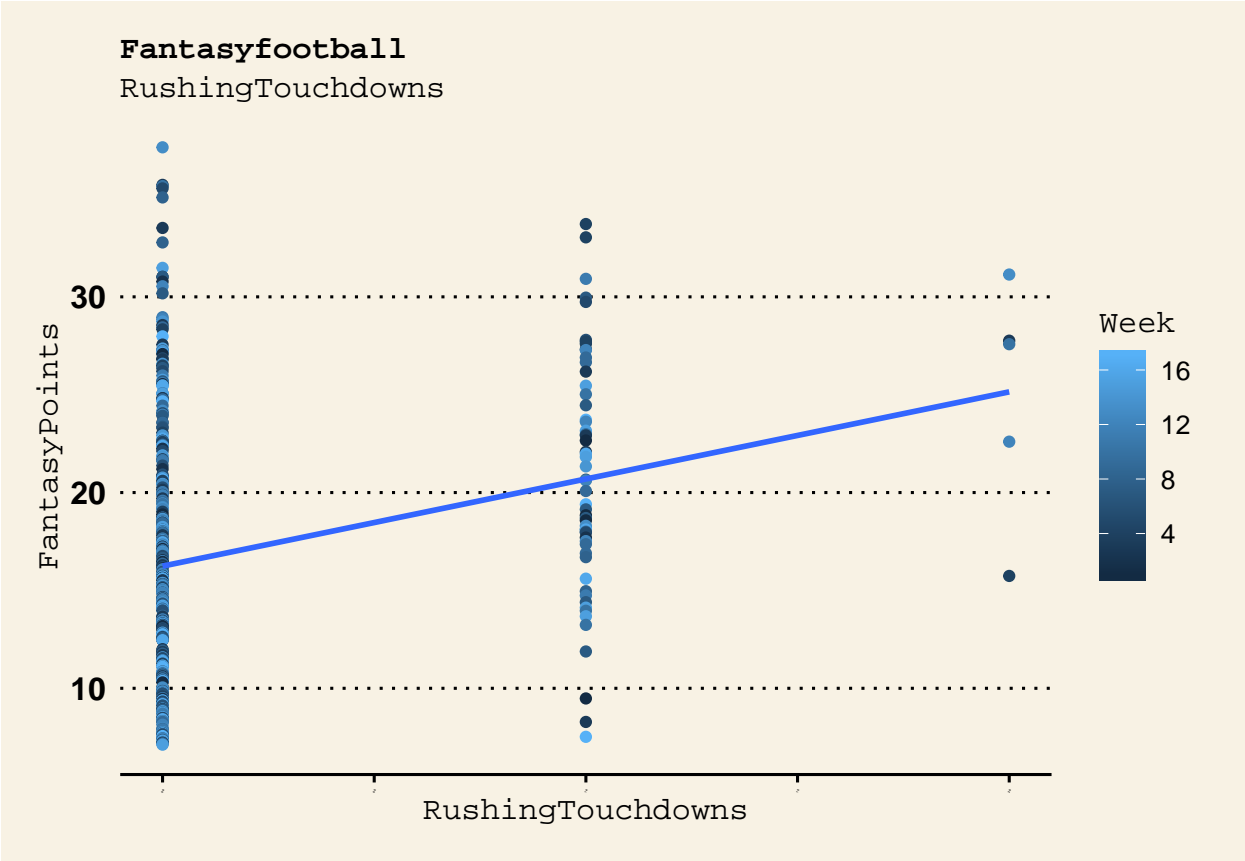






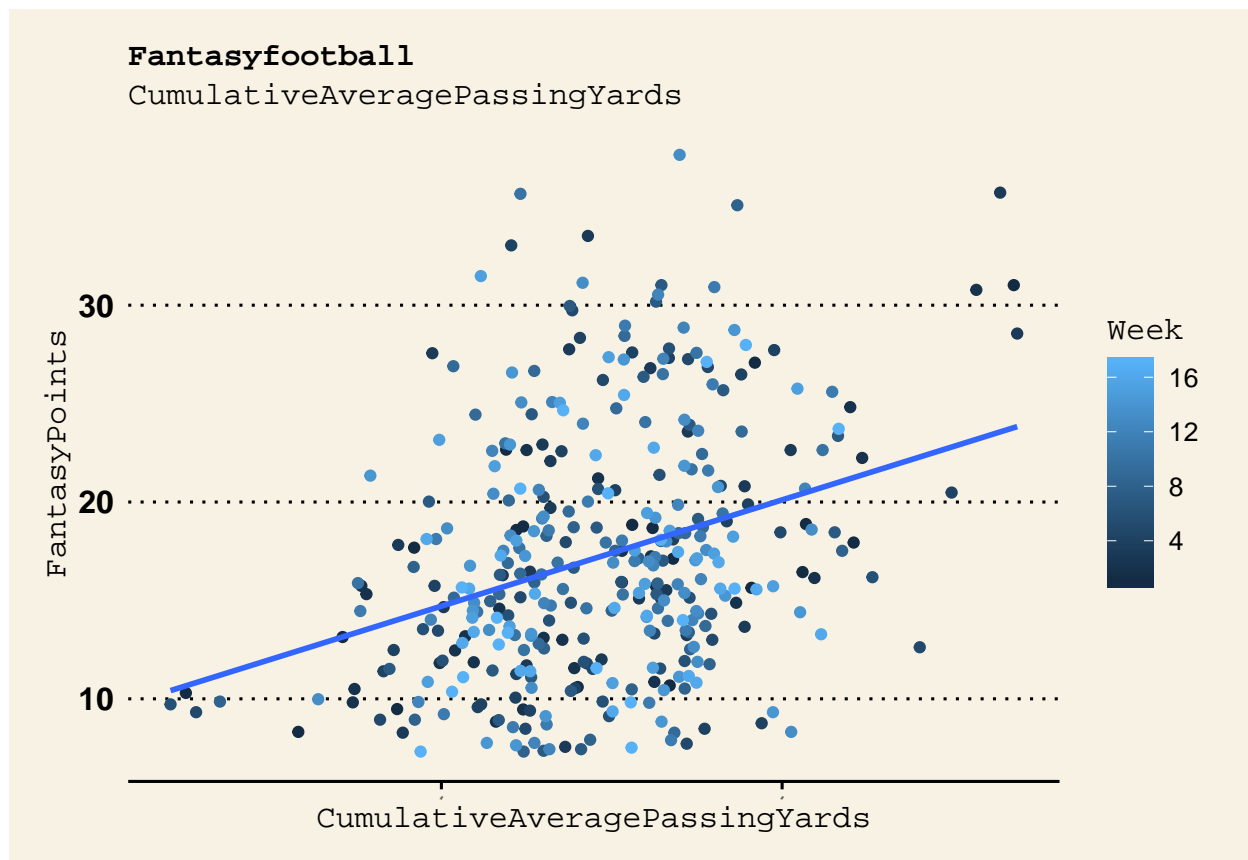






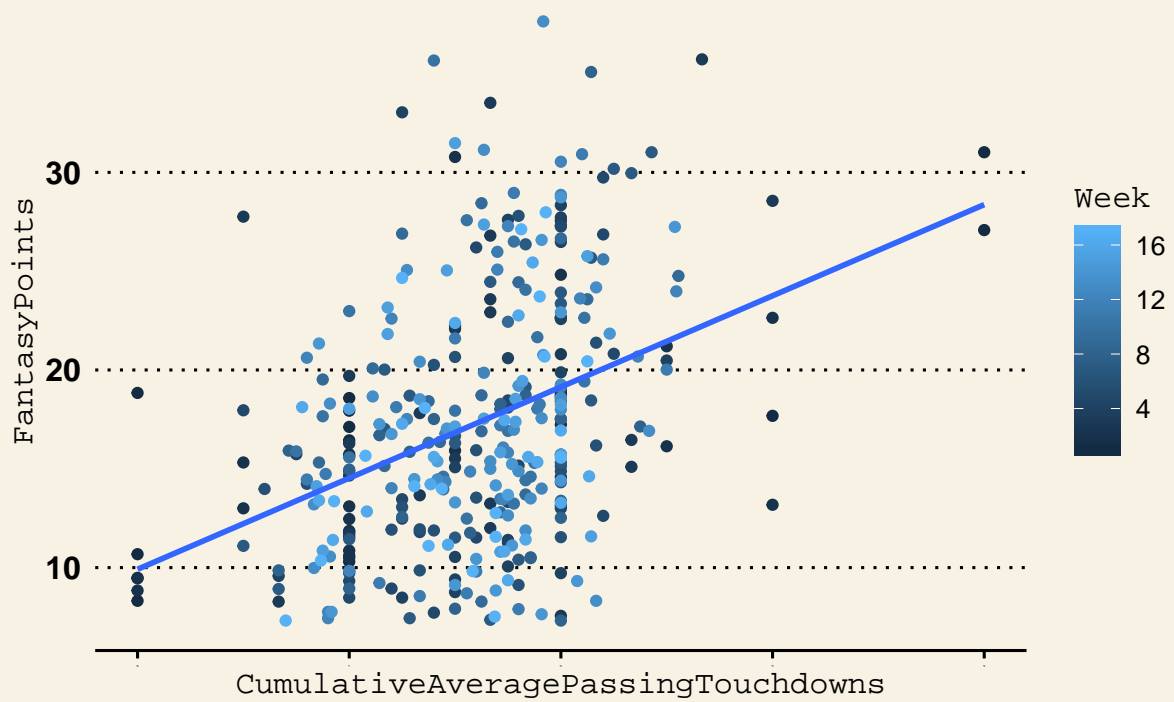
```
## 9.2 : Scatterplots for Derived features
```

```
for (i in 3:20) {
  derived_scatter <- eda_derived %>%
    ggplot(aes_string(y="FantasyPoints",x=names(eda_derived[i]),color="as.numeric(Week)",
    geom_point()+
    geom_smooth(method="lm",se=F)+
    xlab(names(eda_derived[i]))+
    ylab("FantasyPoints")+
    labs(title="Fantasyfootball",
         subtitle=names(eda_derived[i]),
         aption="Source: Fantasyfootball")+
    labs(color="Week")+
    theme_wsj()+
    theme(plot.title = element_text(size = rel(0.5)),
          plot.subtitle = element_text(size = rel(0.5)),
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),
          axis.title = element_text(size = rel(0.5)),
          legend.position = "right",
          legend.direction = "vertical",
          legend.title = element_text(size = rel(0.5))
    )
  print(derived_scatter)
}
```



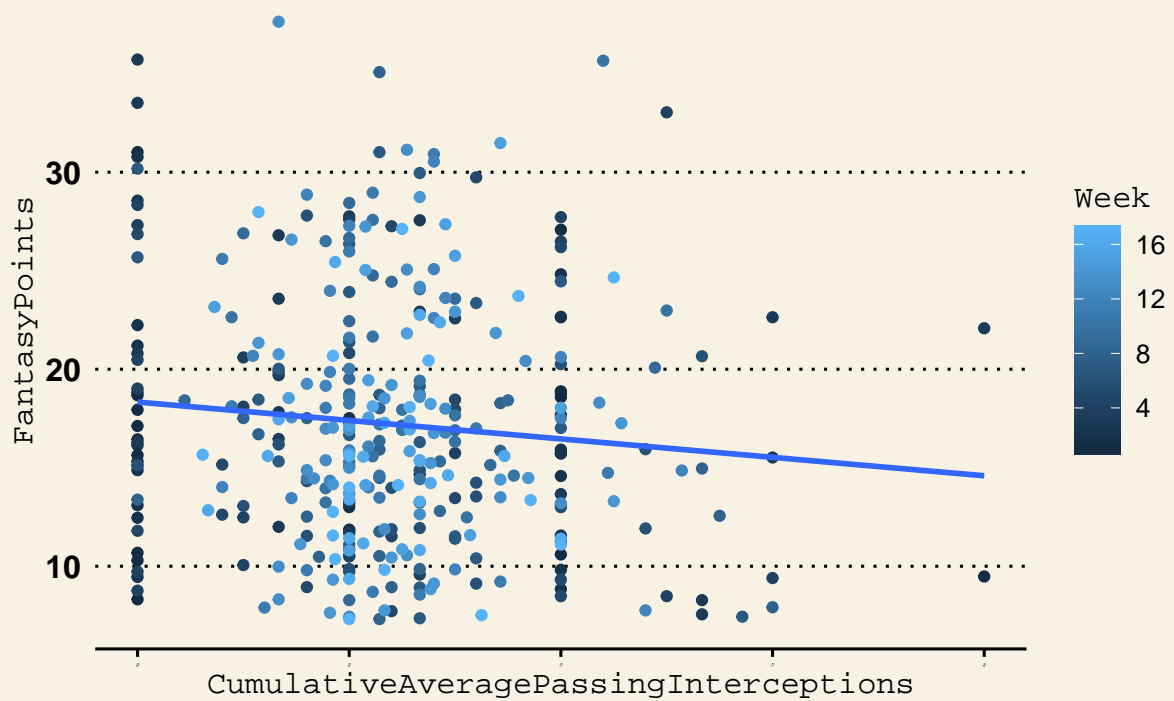
Fantasyfootball

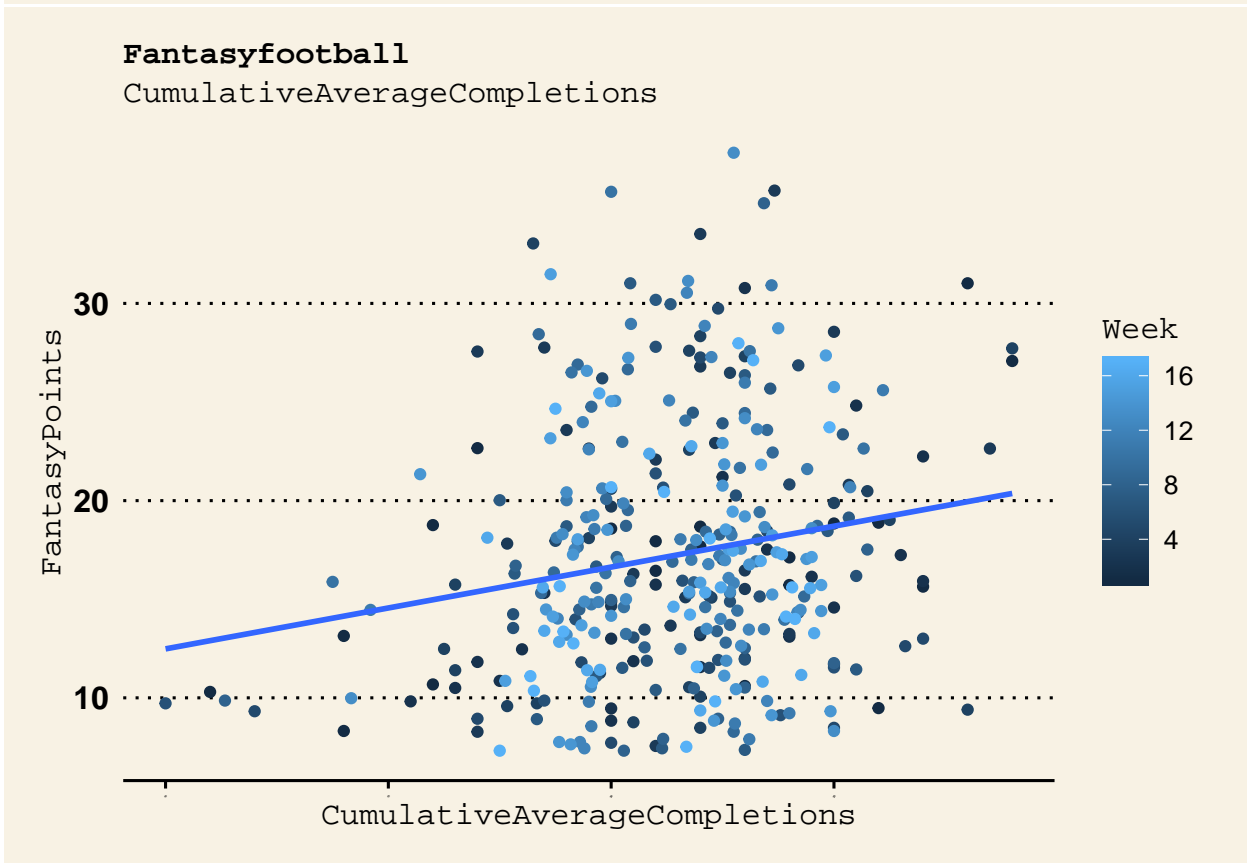
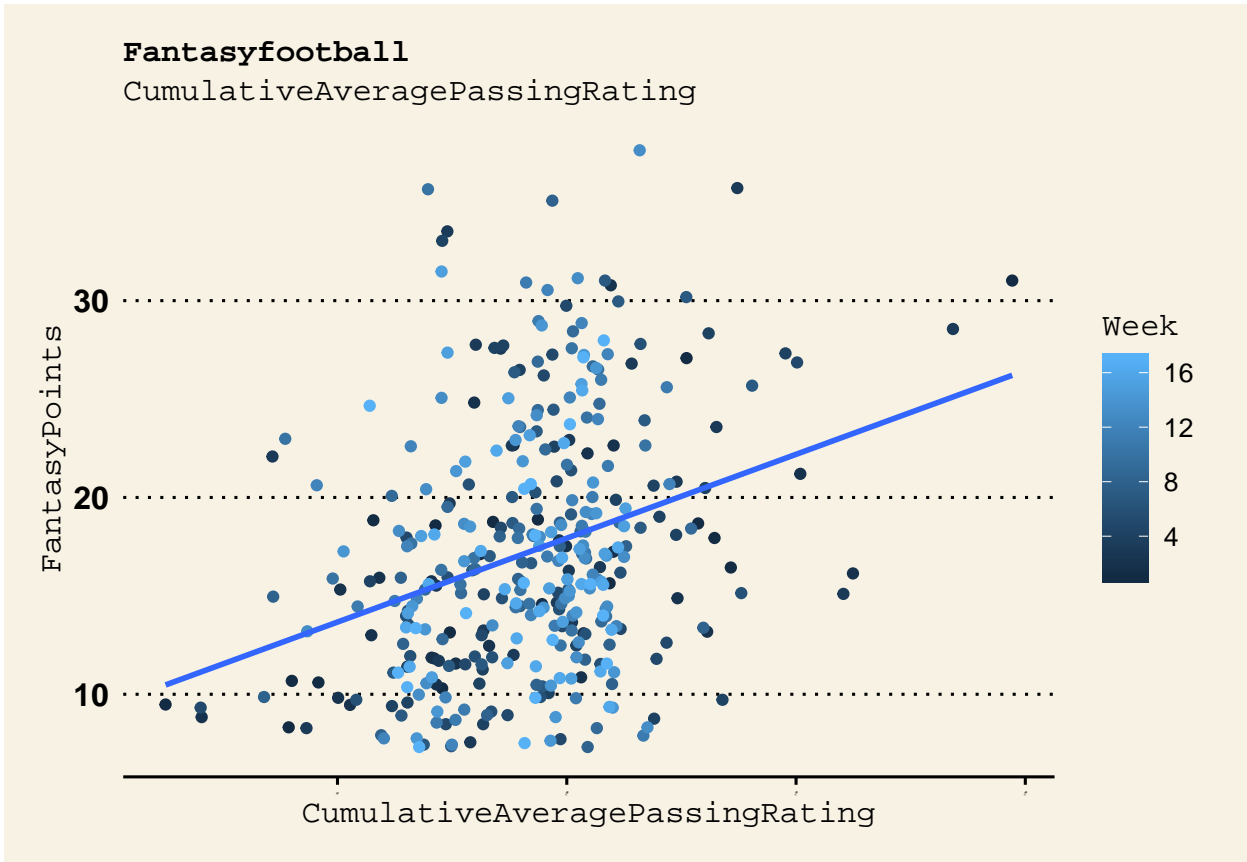
CumulativeAveragePassingTouchdowns

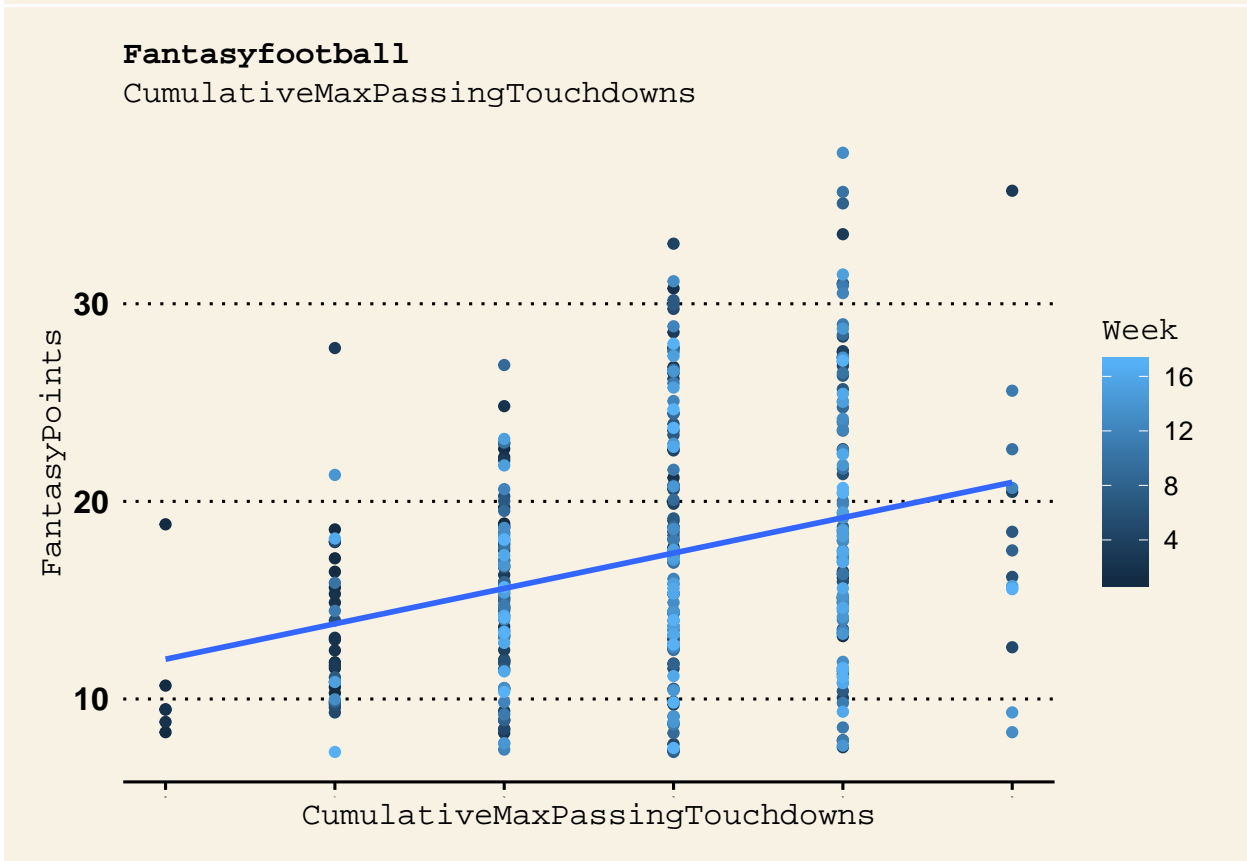
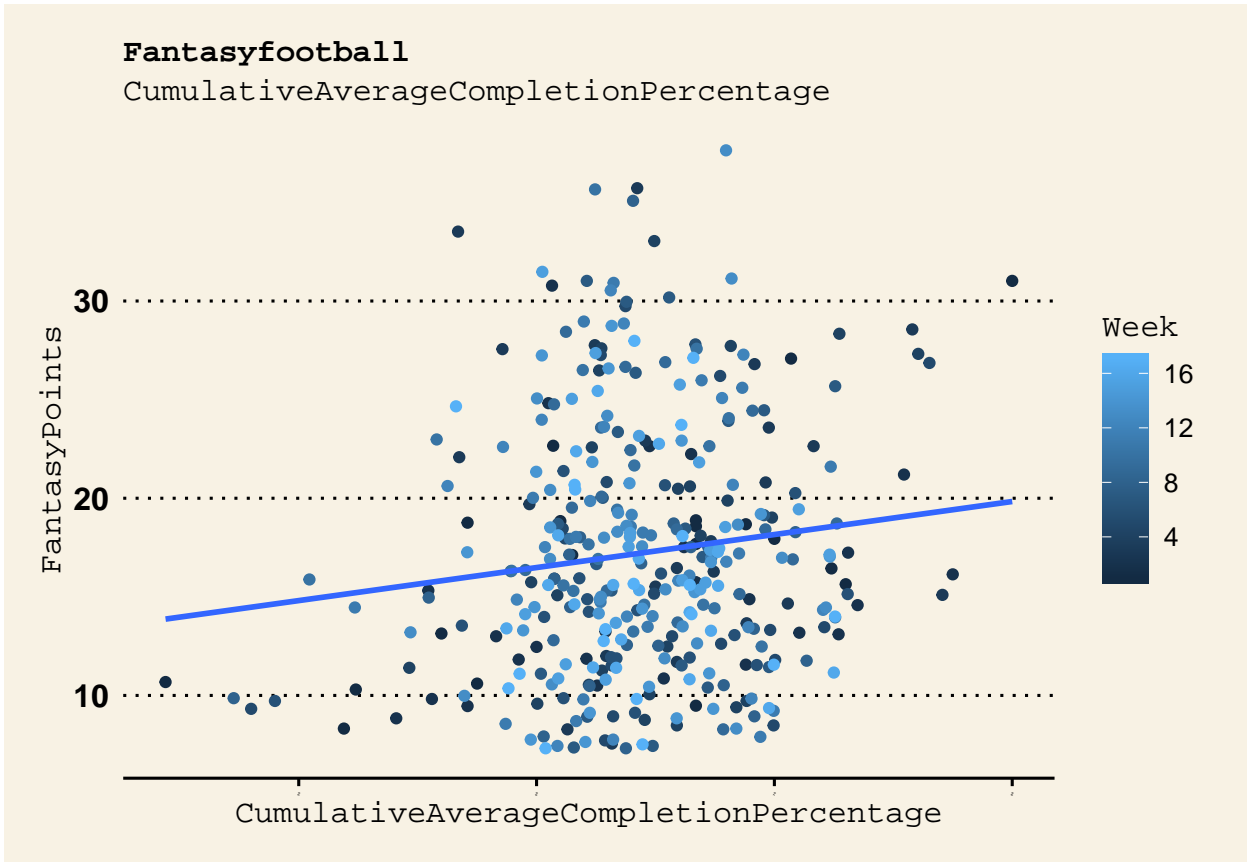


Fantasyfootball

CumulativeAveragePassingInterceptions

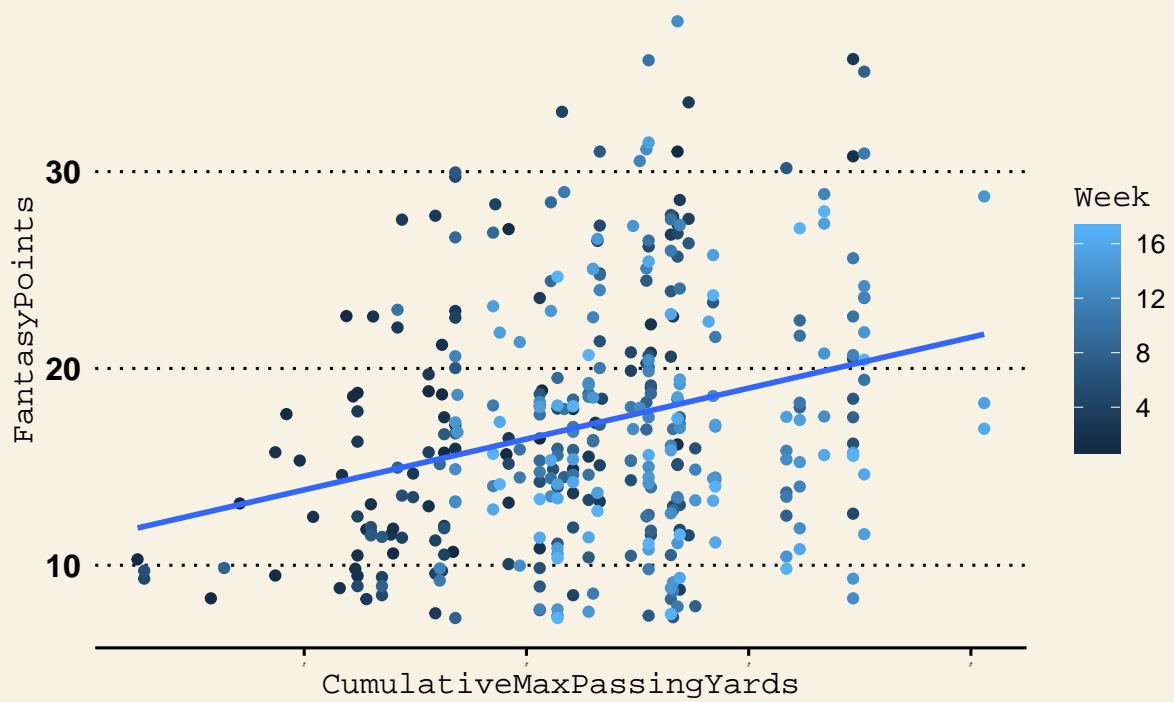






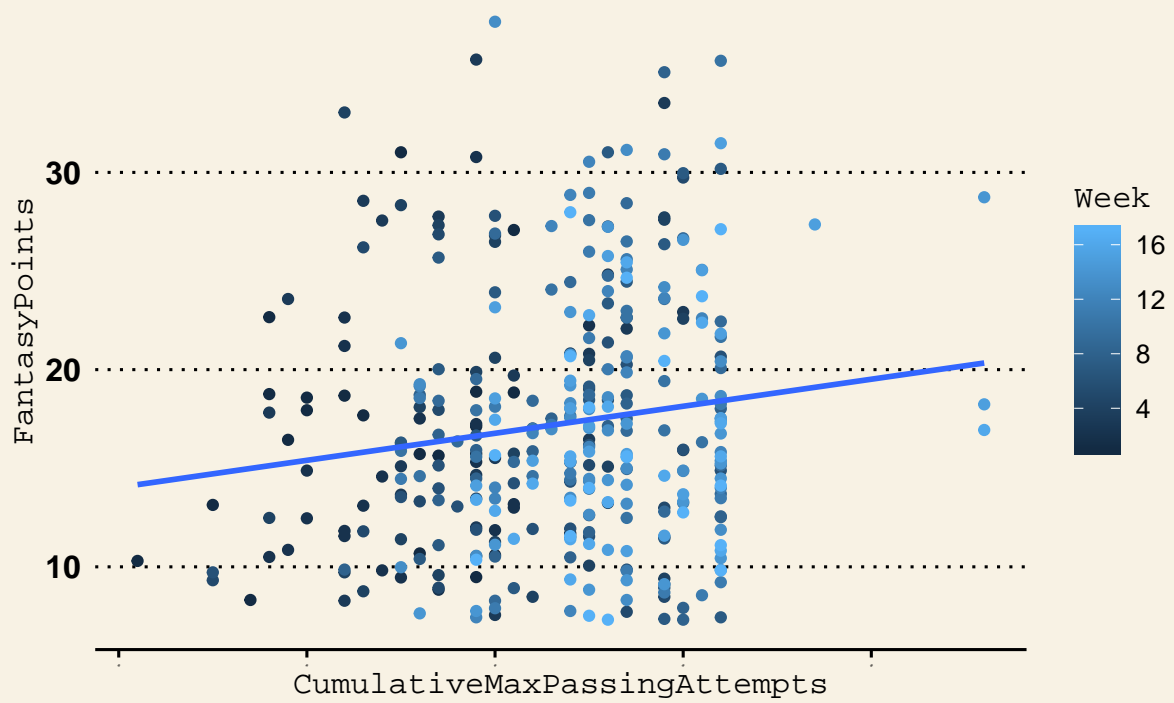
Fantasyfootball

CumulativeMaxPassingYards



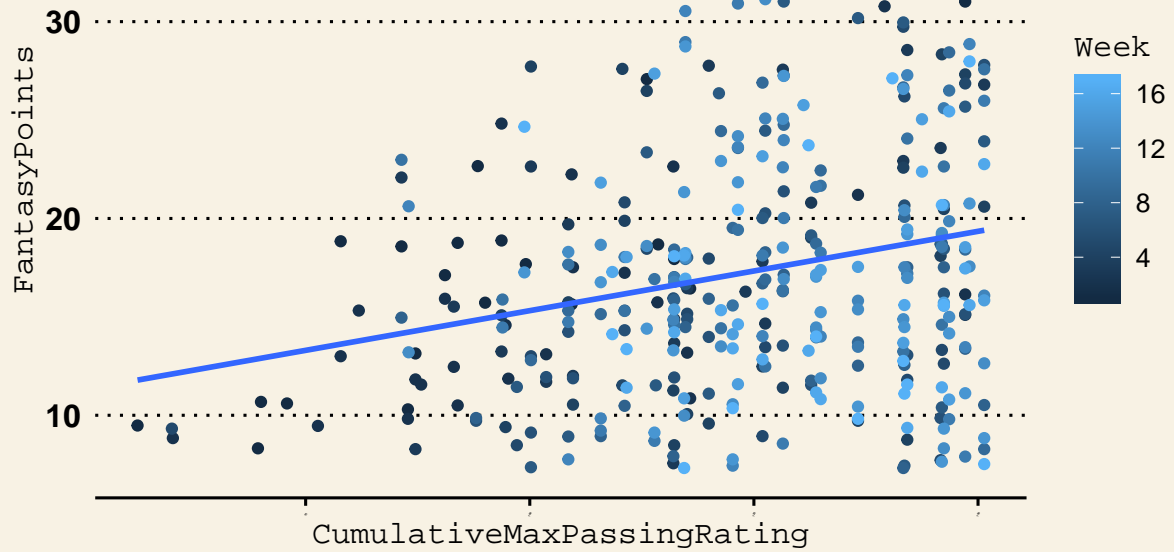
Fantasyfootball

CumulativeMaxPassingAttempts



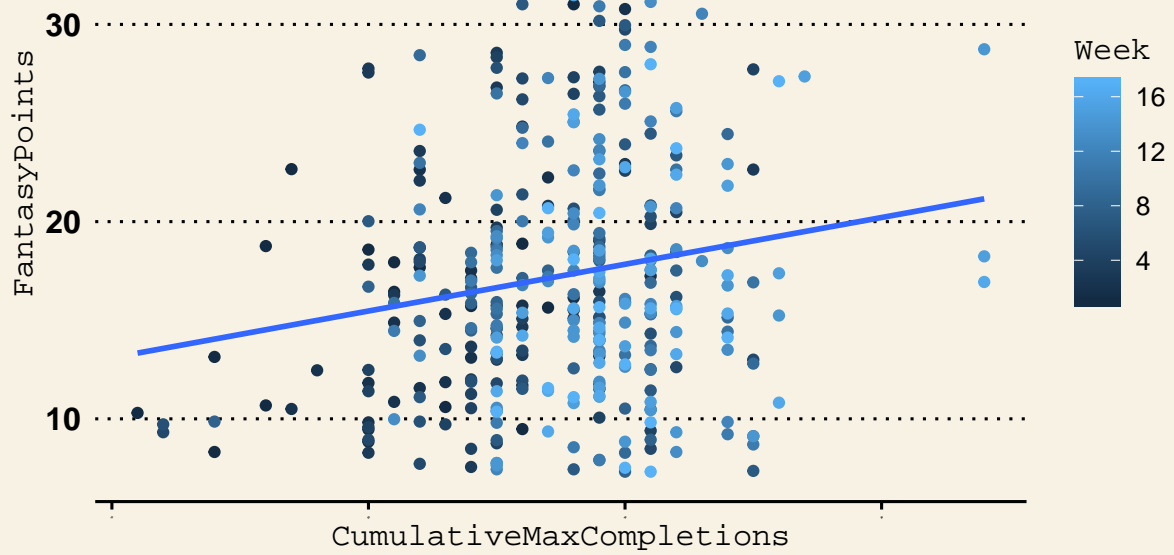
Fantasyfootball

CumulativeMaxPassingRating



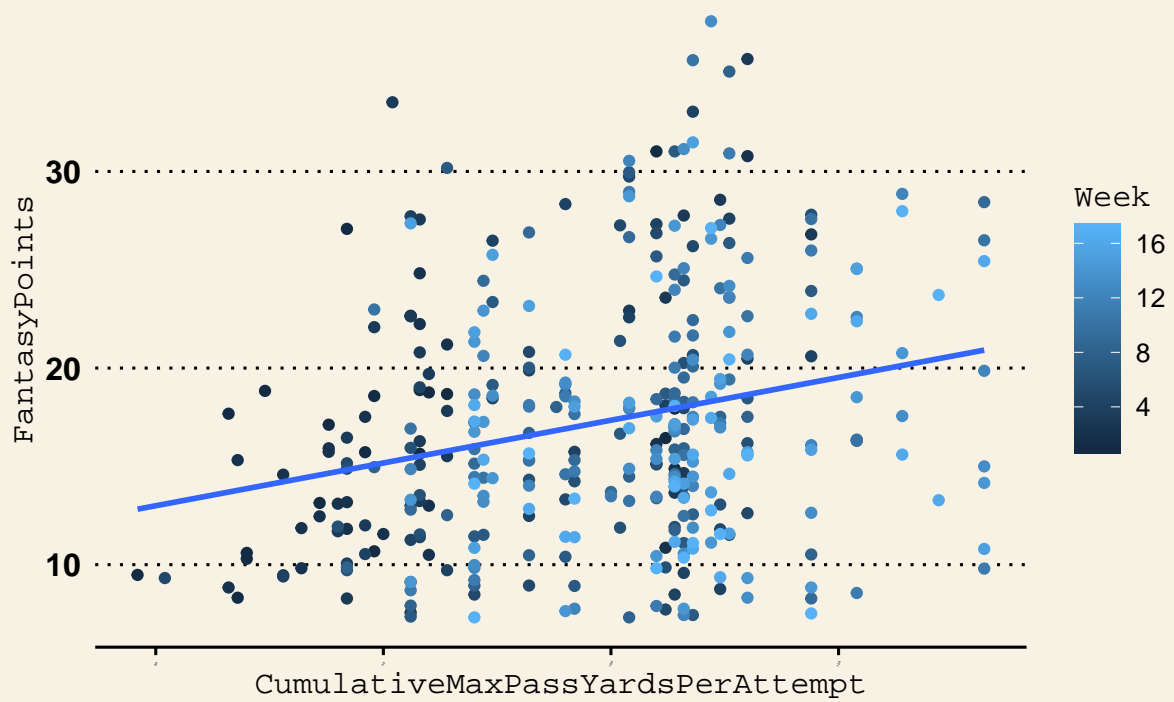
Fantasyfootball

CumulativeMaxCompletions



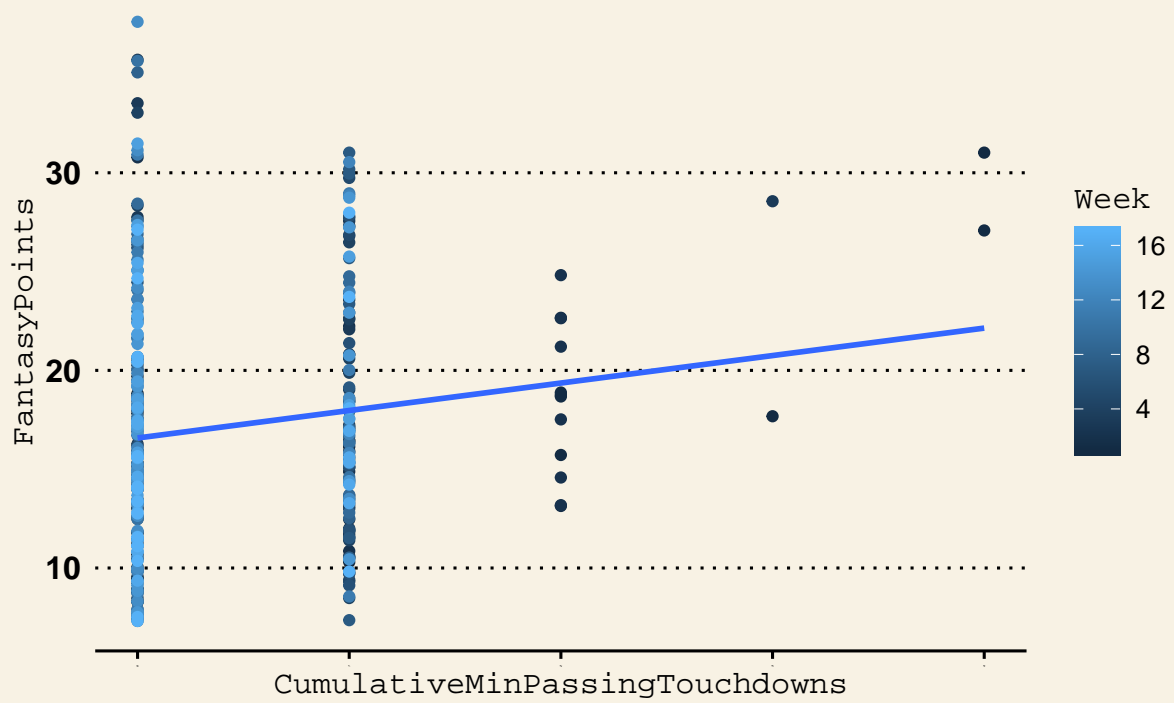
Fantasyfootball

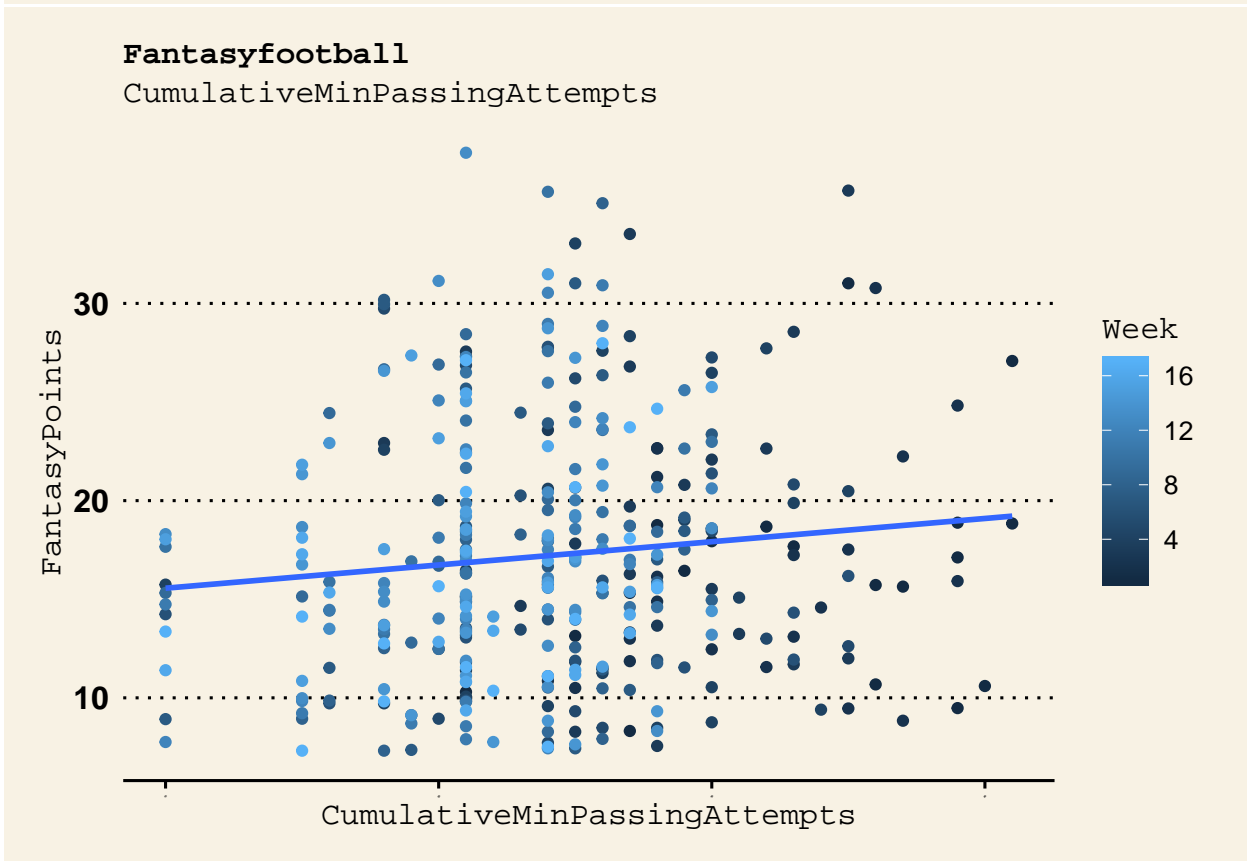
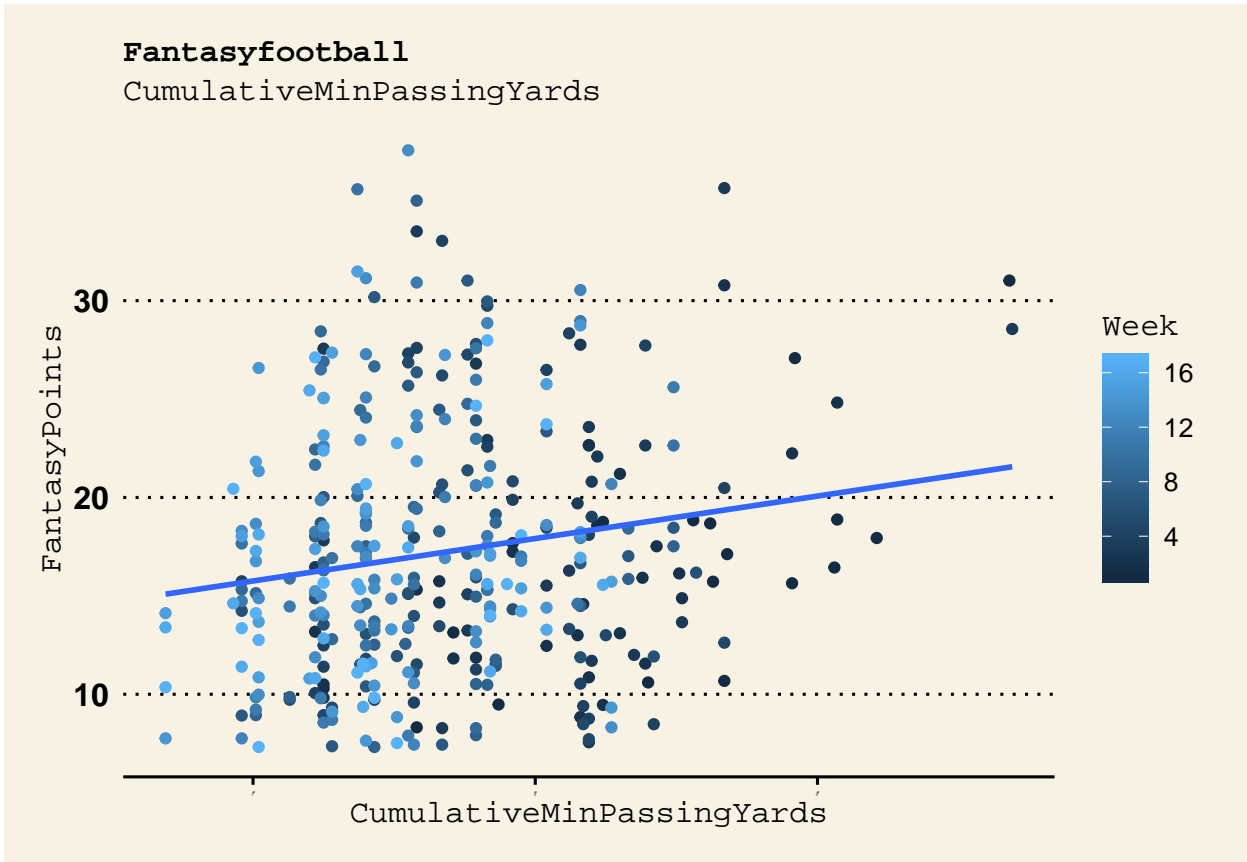
CumulativeMaxPassYardsPerAttempt

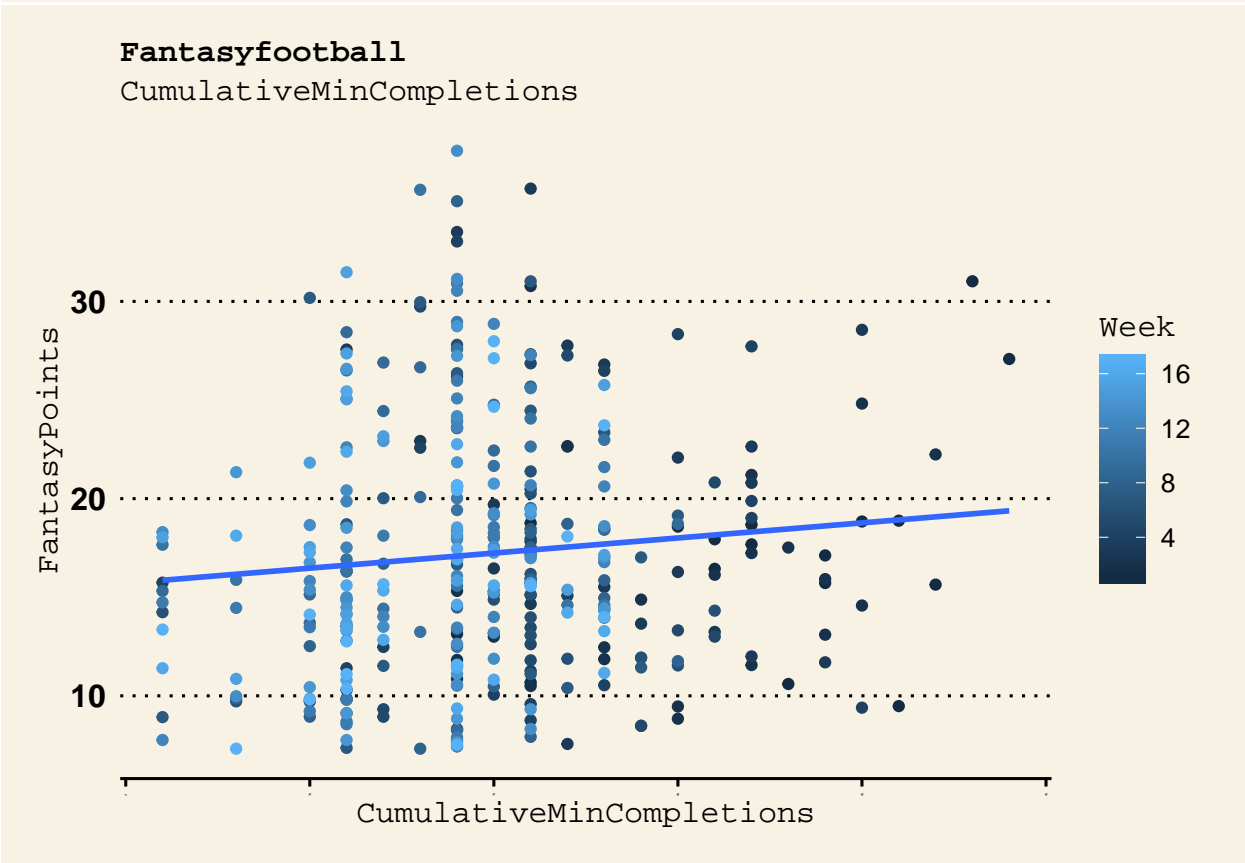
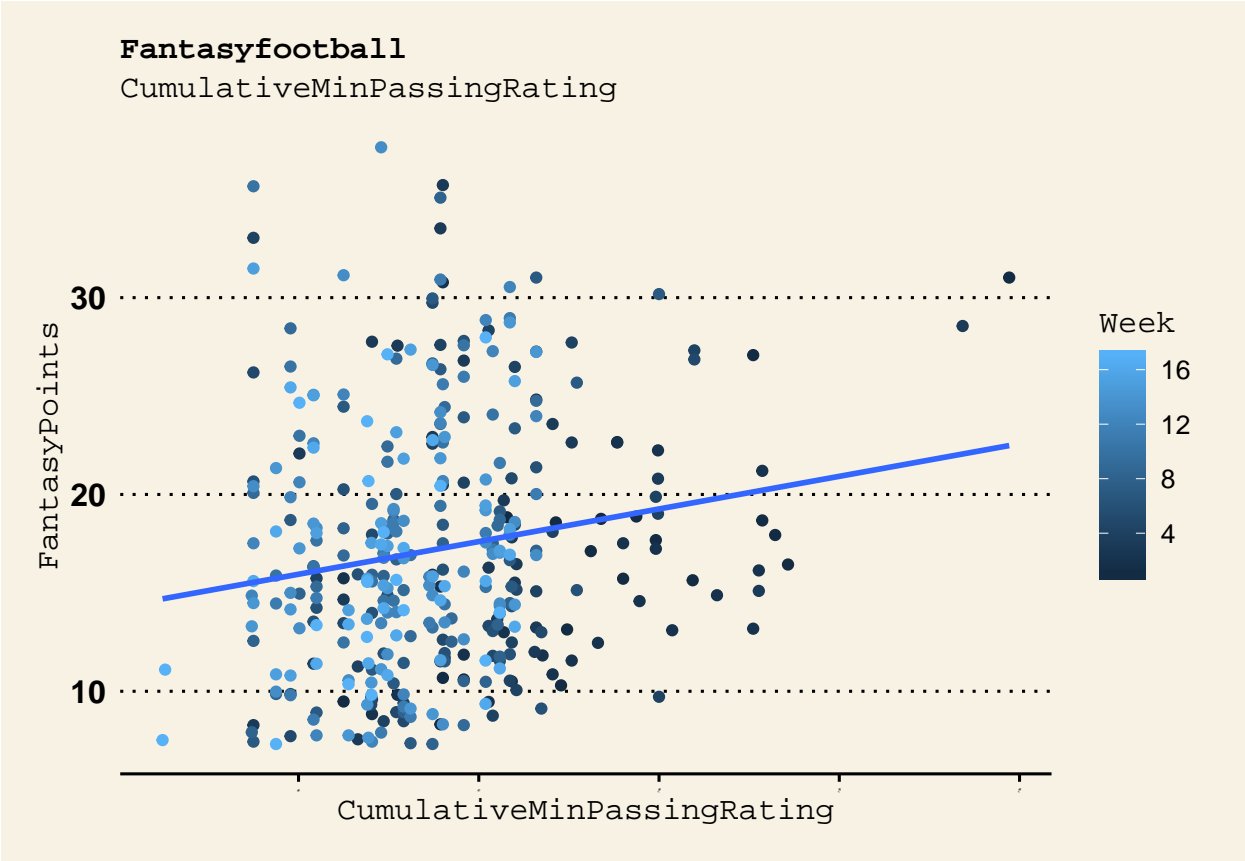


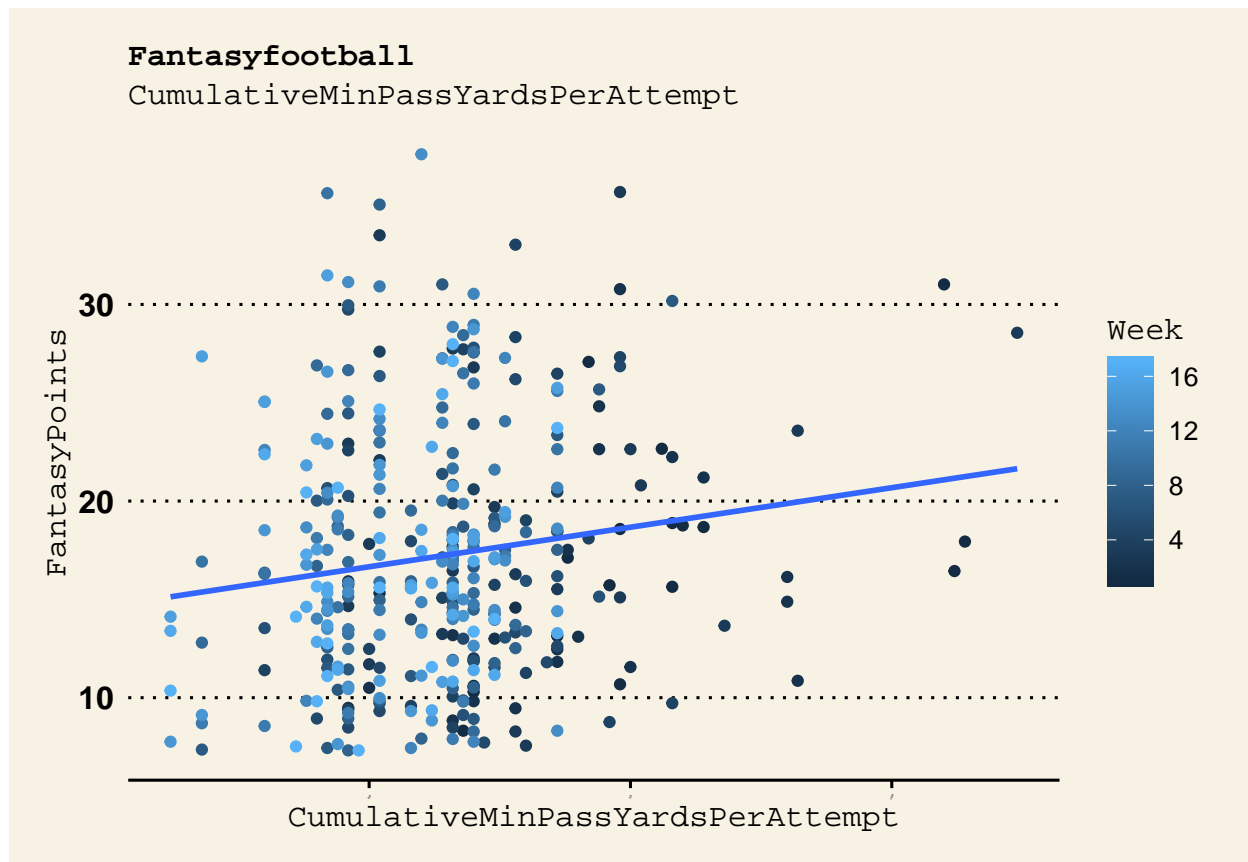
Fantasyfootball

CumulativeMinPassingTouchdowns









10 : Line plots

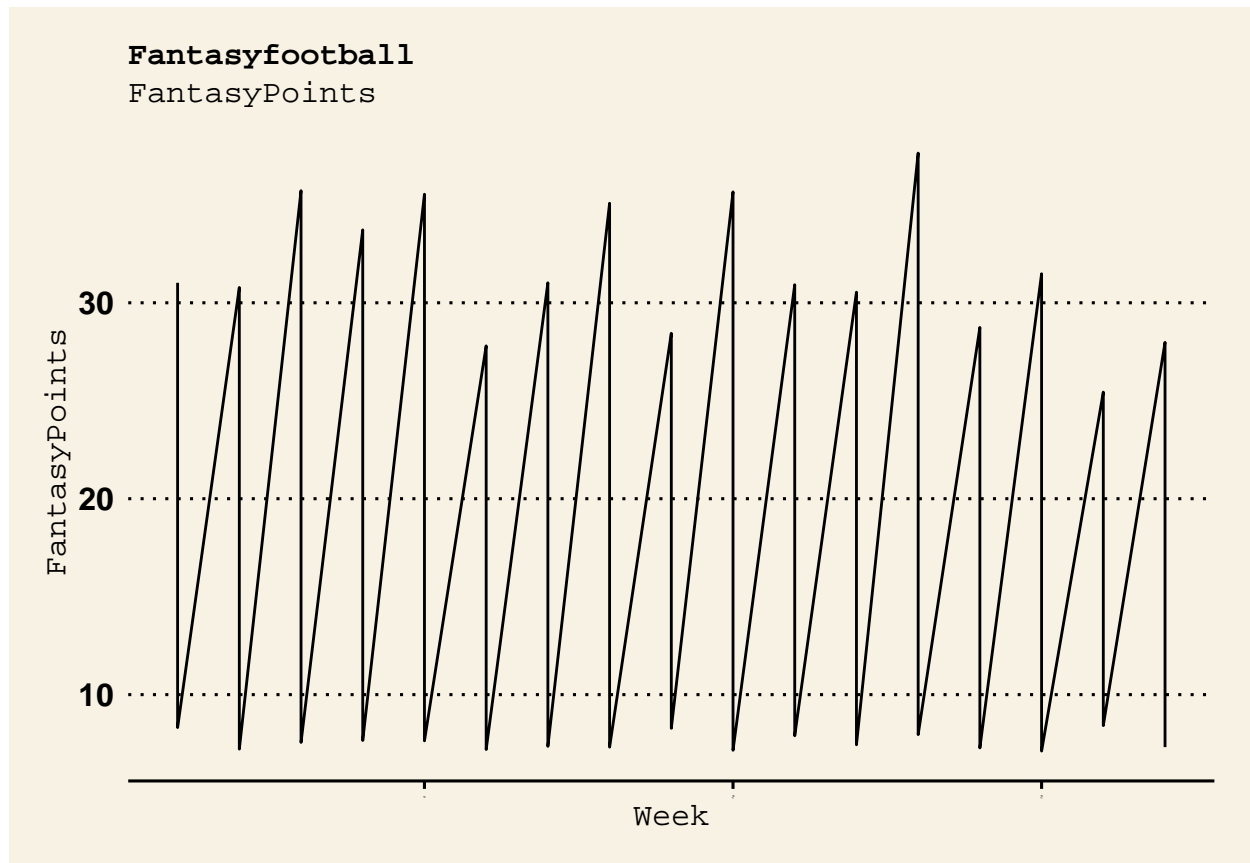
10.1 Base Features

```
line_ds <- eda_base %>% group_by(Week) %>% arrange(Week)

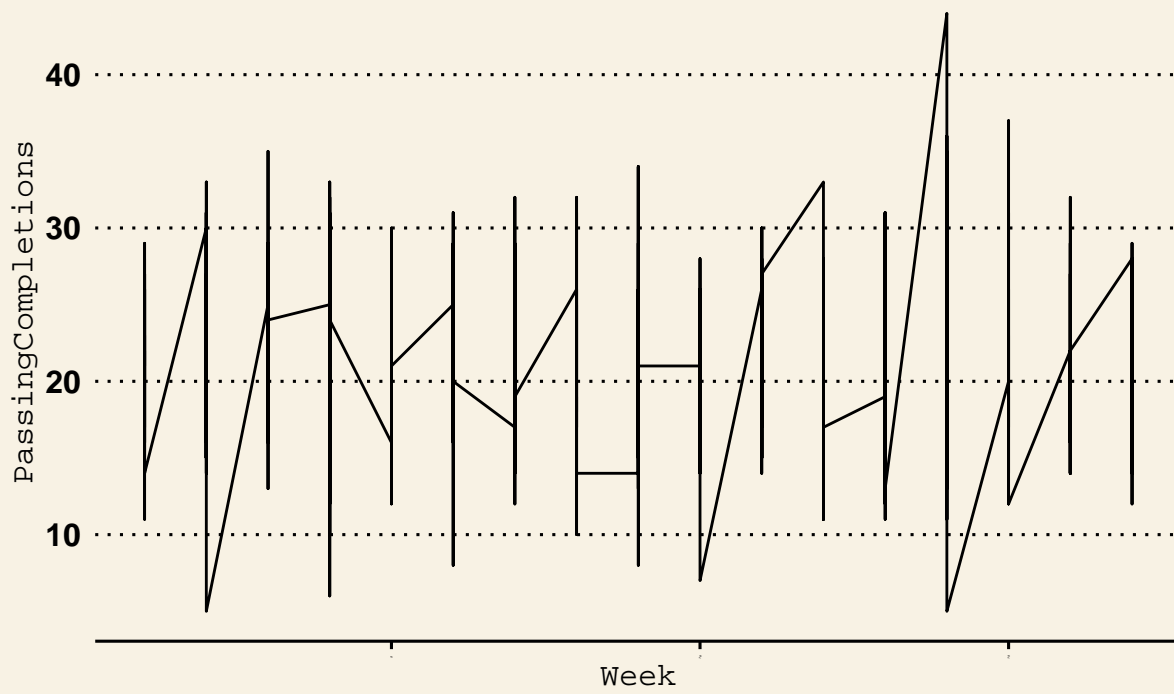
for(p in 2:15){

  line_plot <- line_ds %>%
    ggplot(aes_string(x="as.numeric(Week)",y=names(line_ds[p])))+
    ggtitle(names(line_ds[p]))+
    geom_line(show.legend = FALSE)+
    xlab("Week")+
    ylab(names(line_ds[p]))+
    labs(title="Fantasyfootball",
         subtitle=names(line_ds[p]),
         caption="Source: Fantasyfootball")+
    theme_wsj()+
    theme(plot.title = element_text(size = rel(0.5)),
          plot.subtitle = element_text(size = rel(0.5)),
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),
          axis.title = element_text(size = rel(0.5)),
          legend.position = "right",
          legend.direction = "vertical",
          legend.title = element_text(size = rel(0.5)))
```

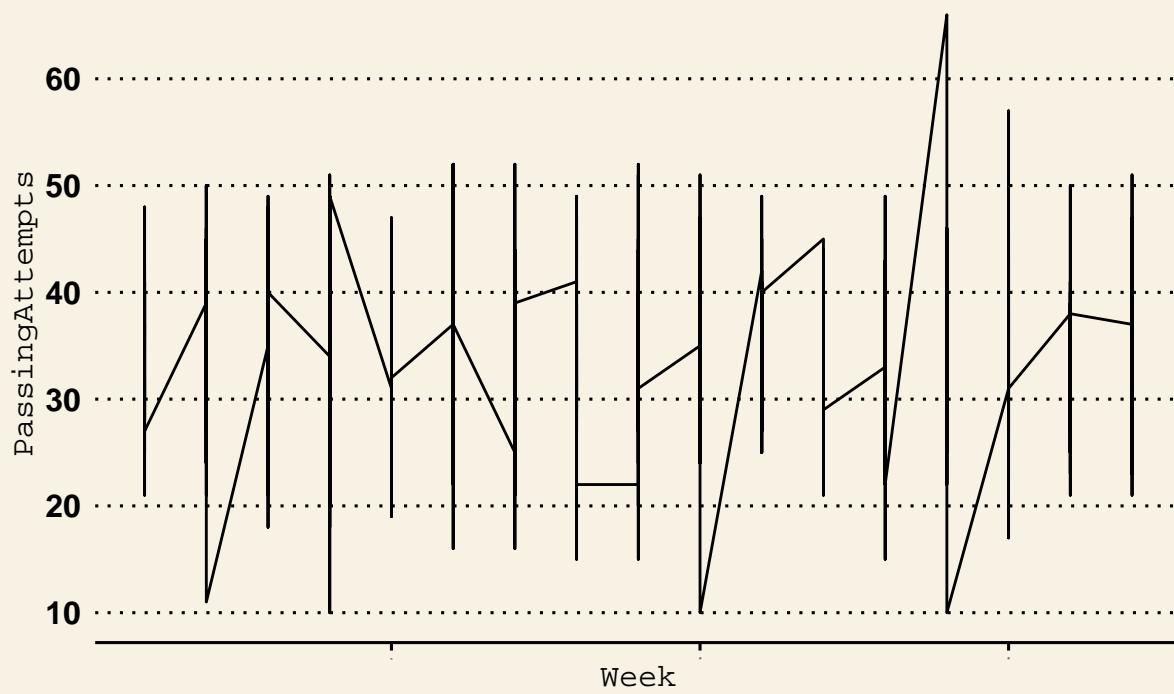
```
print(line_plot)
}
```



Fantasyfootball
PassingCompletions

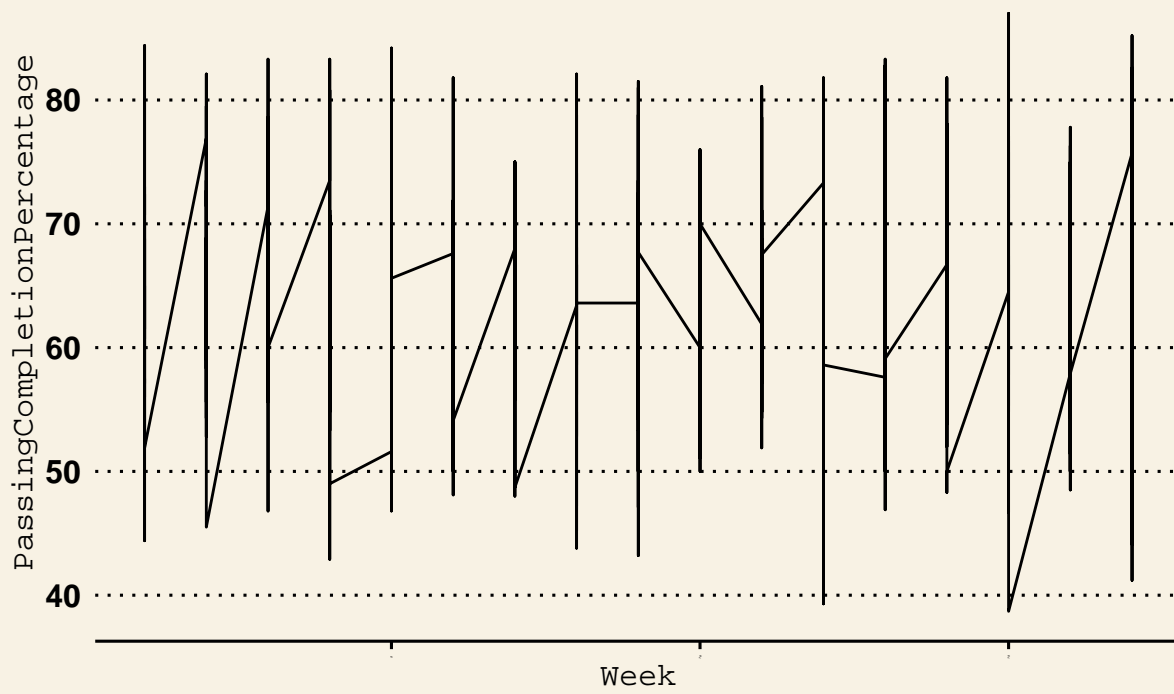


Fantasyfootball
PassingAttempts



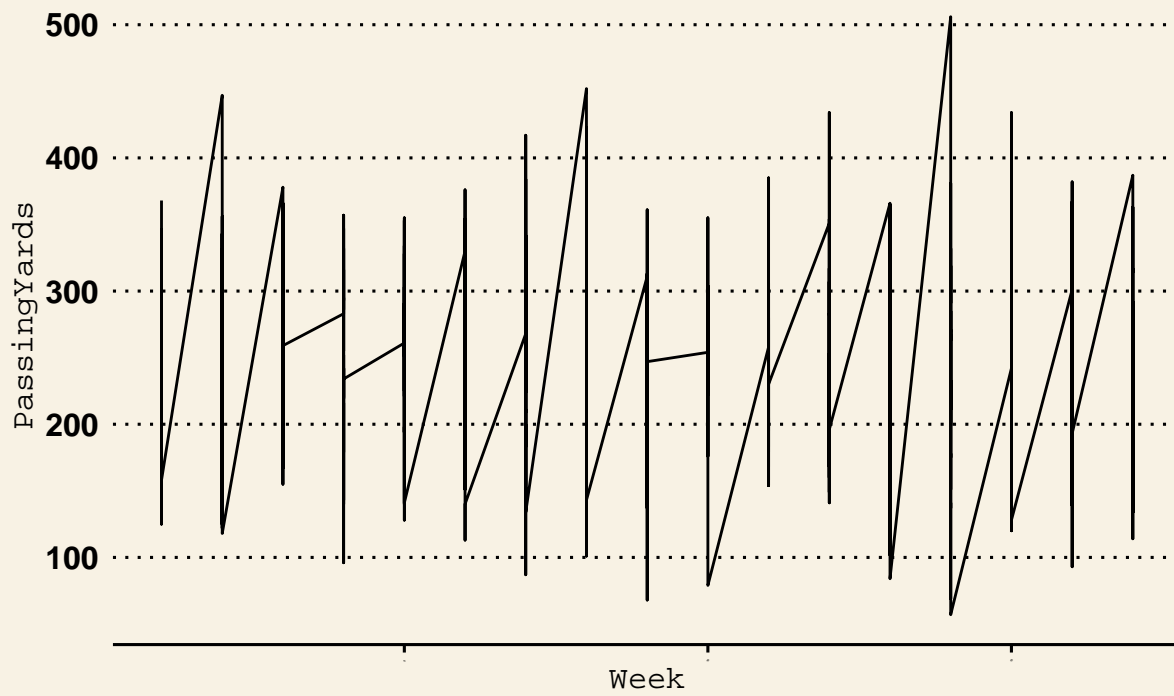
Fantasyfootball

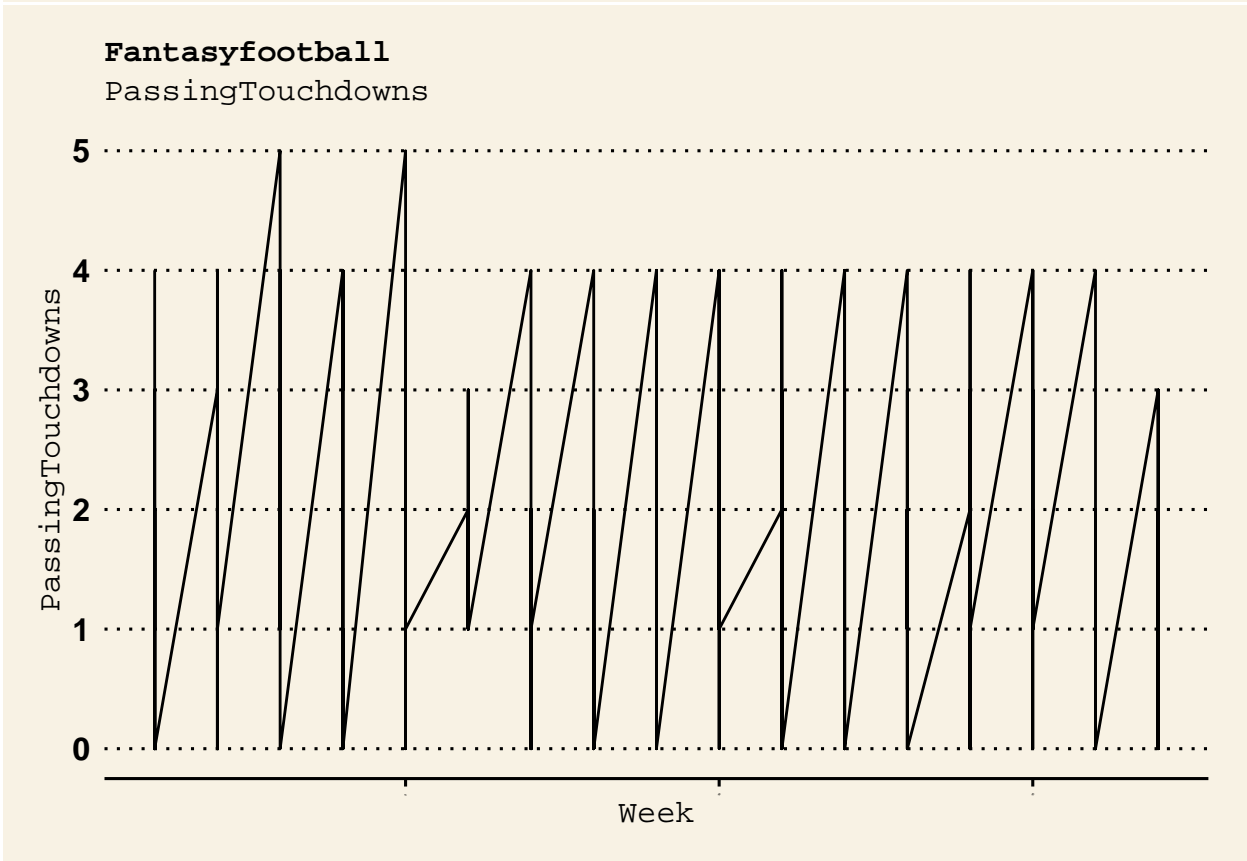
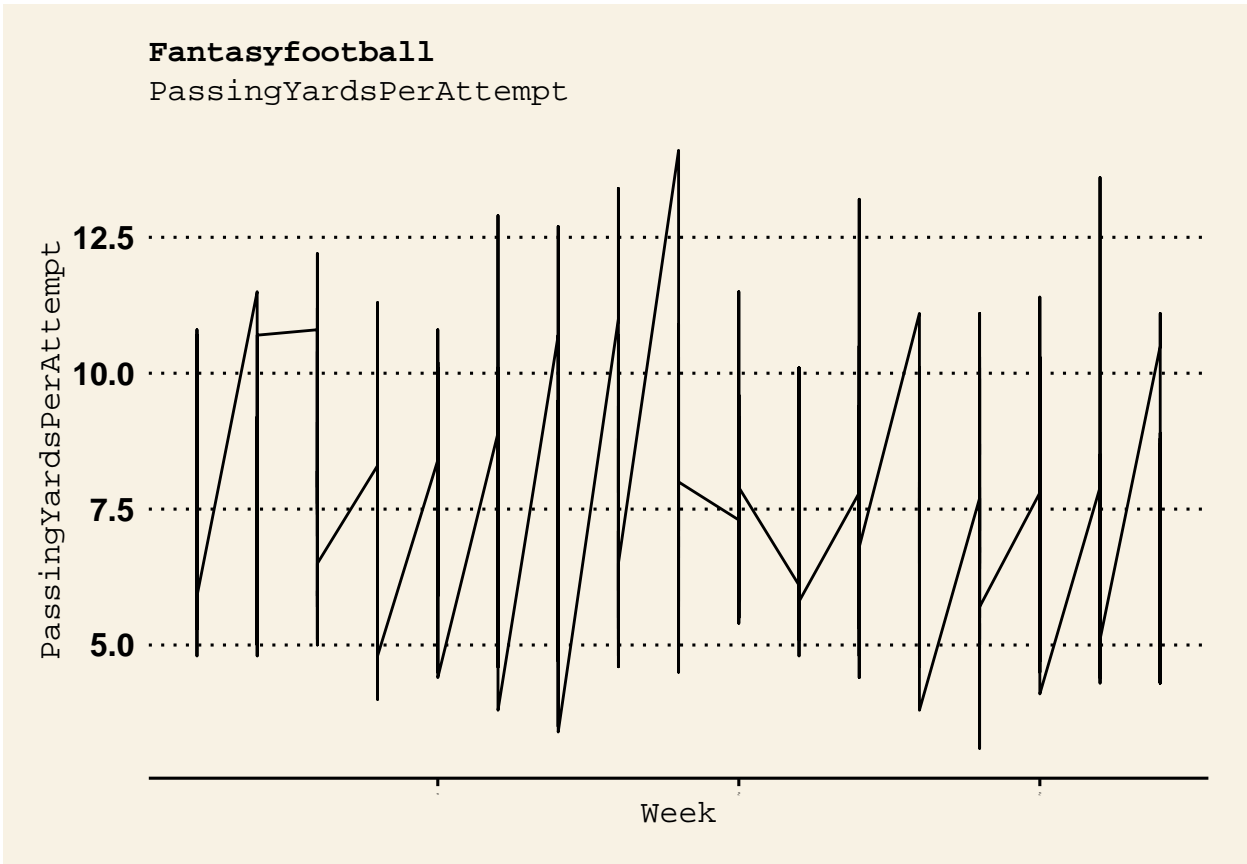
PassingCompletionPercentage



Fantasyfootball

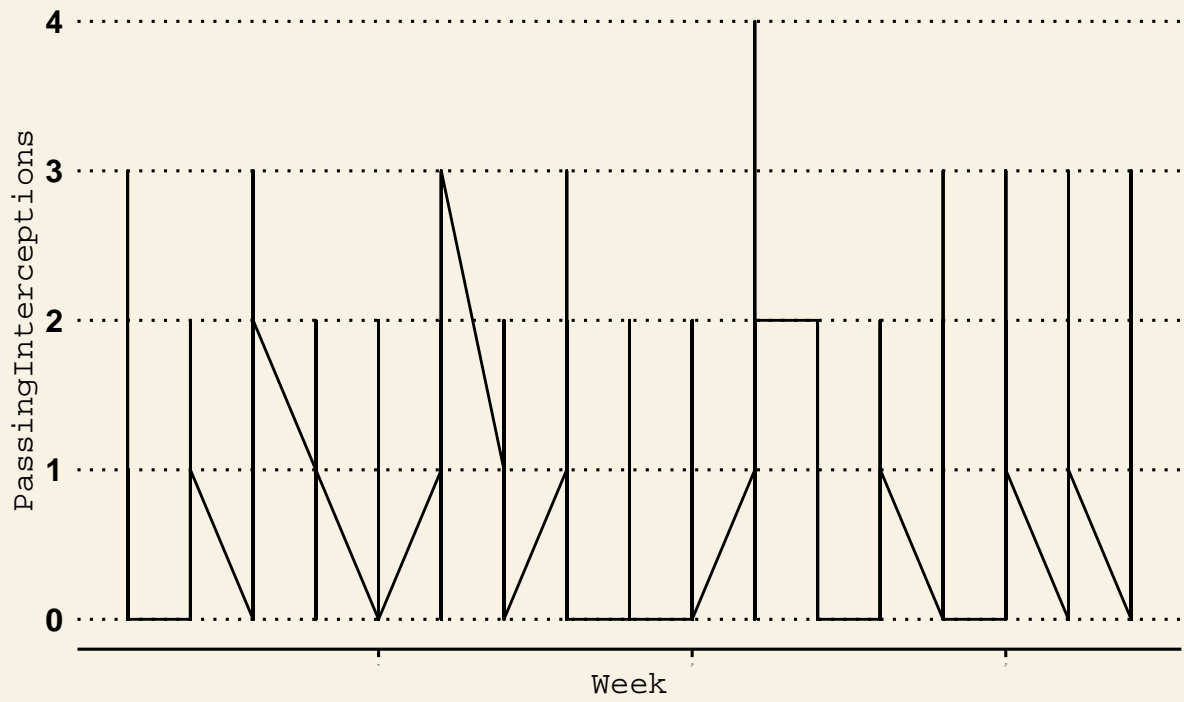
PassingYards





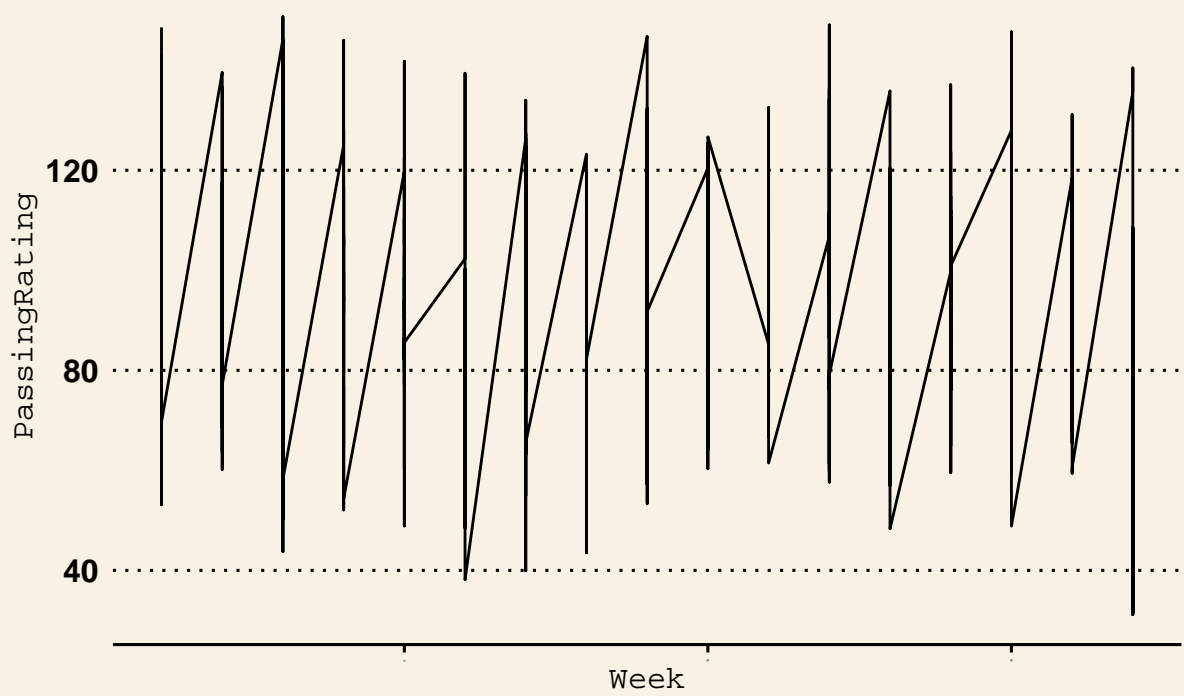
Fantasyfootball

PassingInterceptions

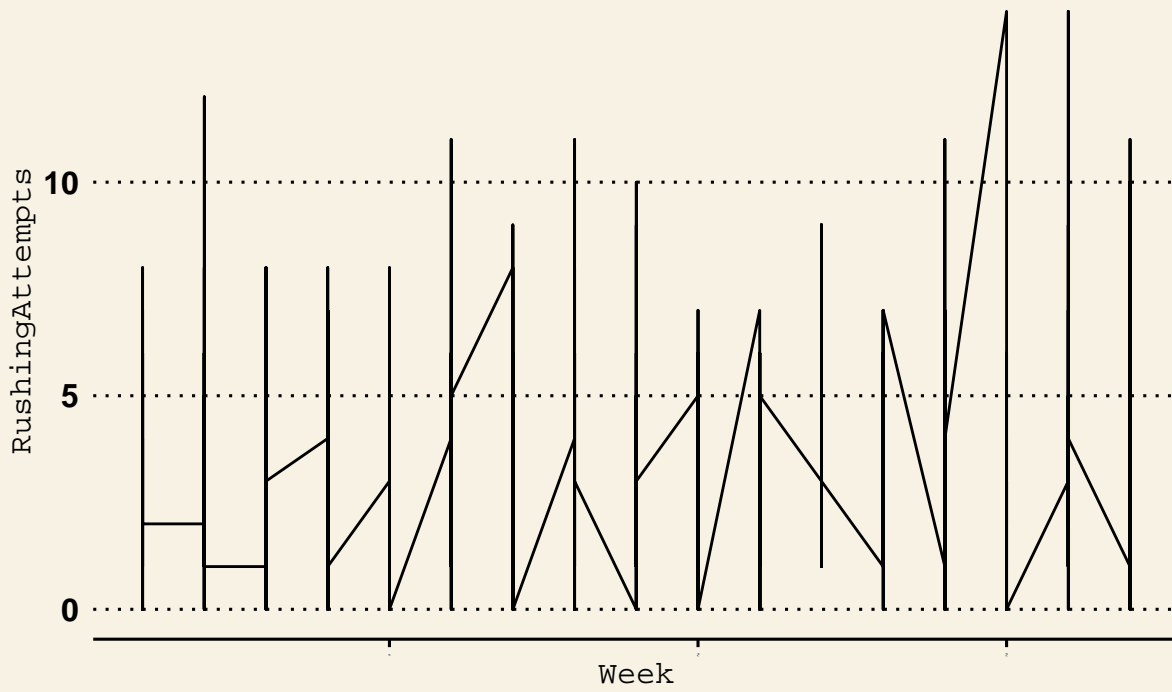


Fantasyfootball

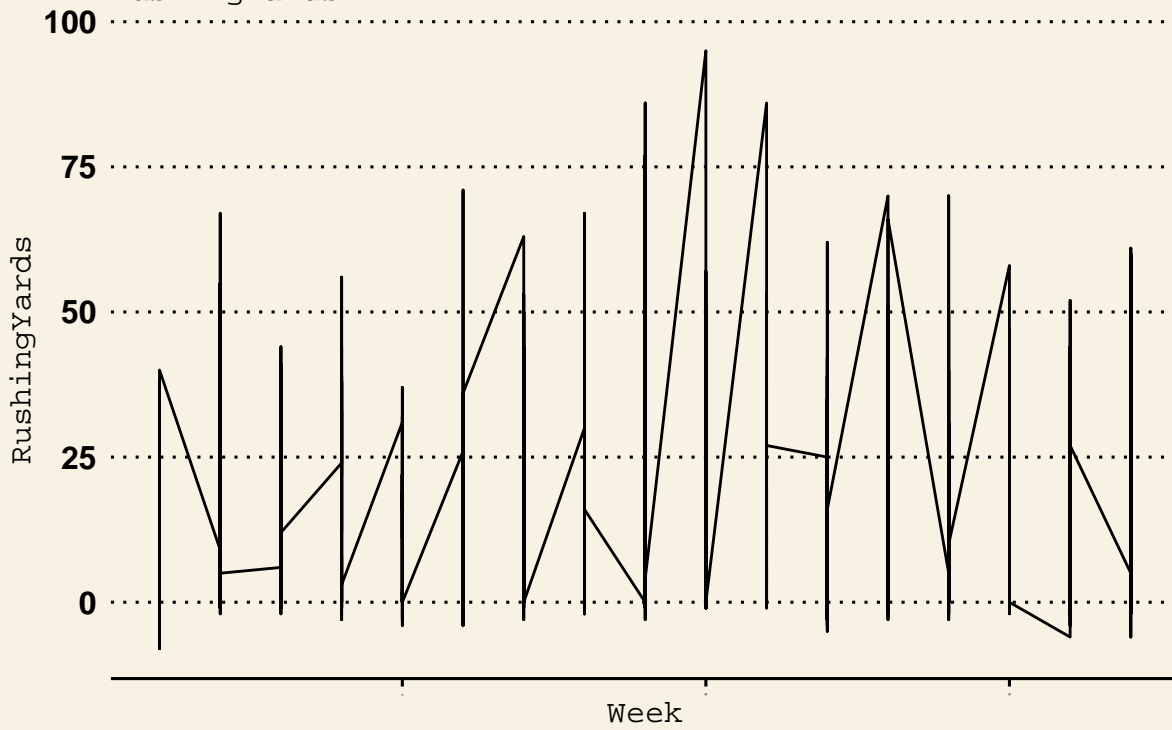
PassingRating



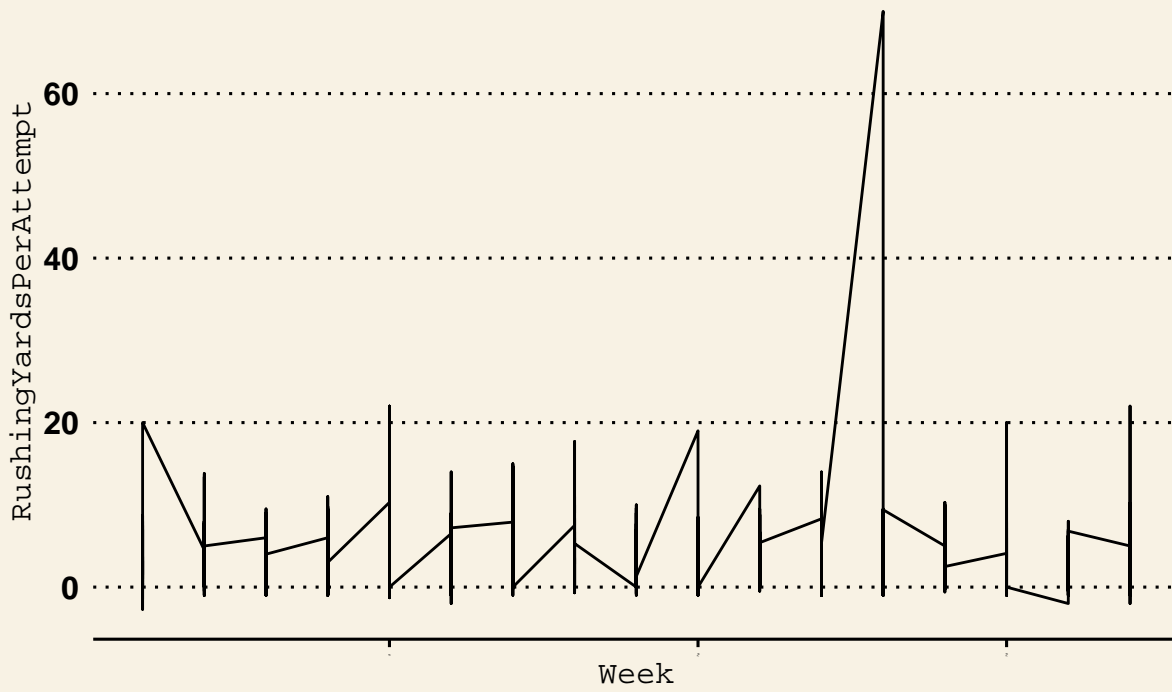
Fantasyfootball
RushingAttempts



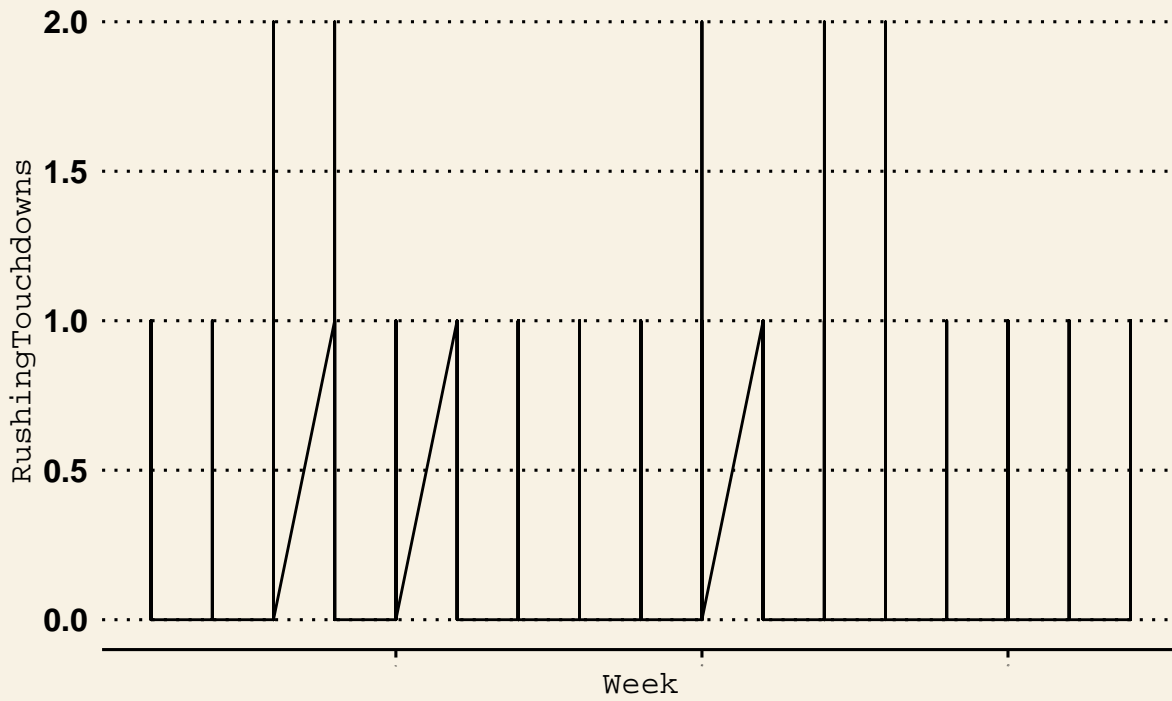
Fantasyfootball
RushingYards

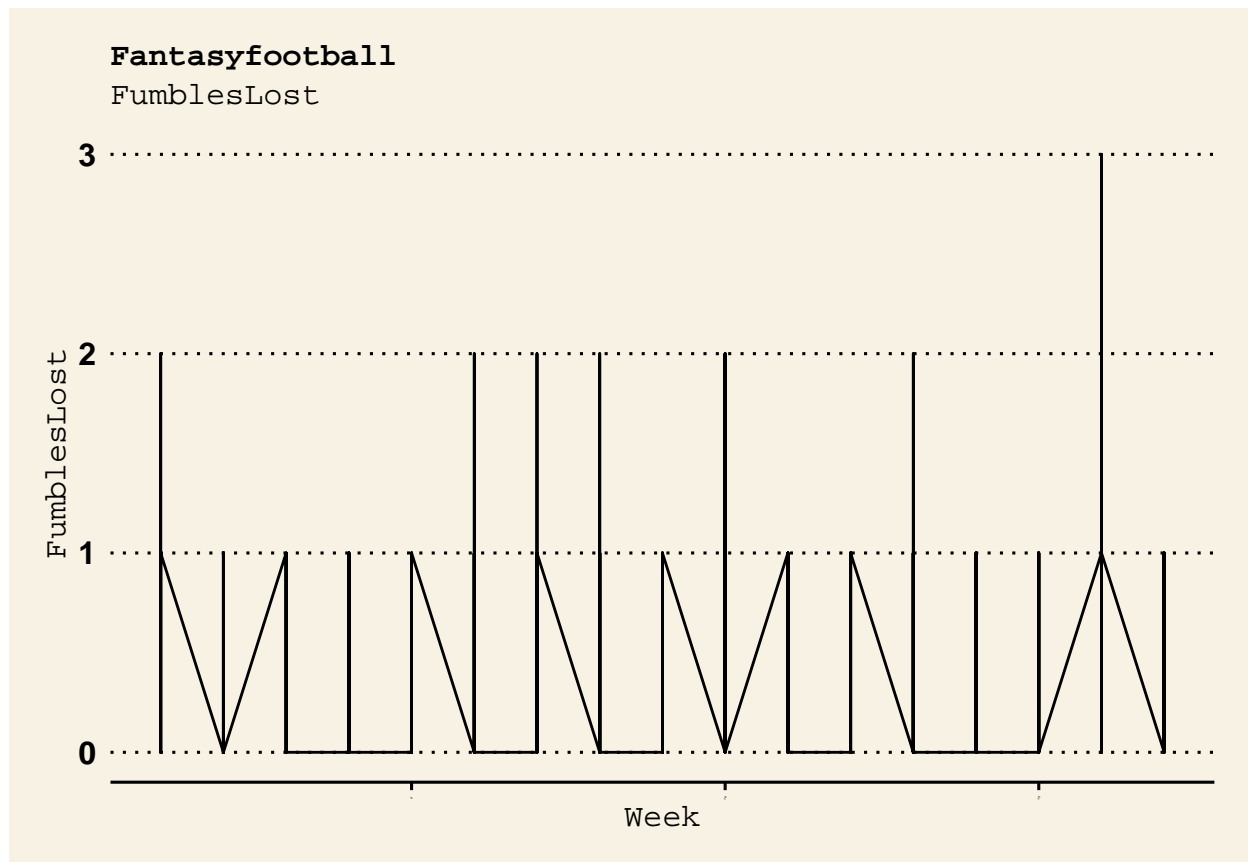


Fantasyfootball
RushingYardsPerAttempt



Fantasyfootball
RushingTouchdowns





10.2 Derived Features

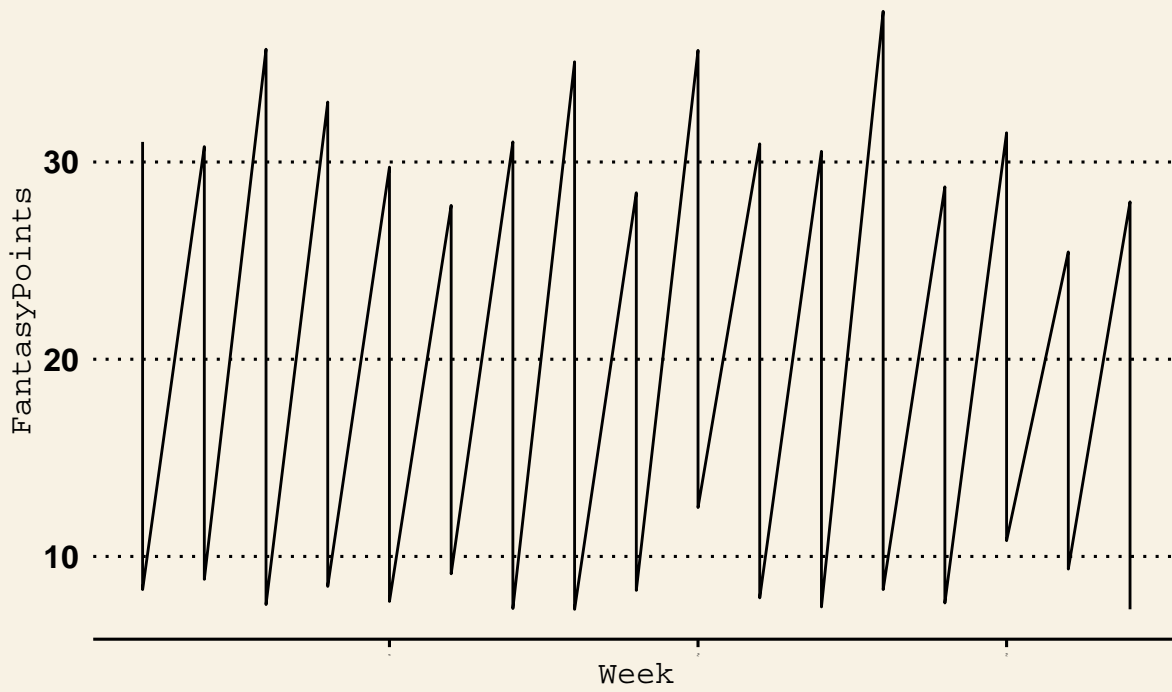
```
line_ds <- eda_derived %>% group_by(Week) %>% arrange(Week)

for(p in 2:20){

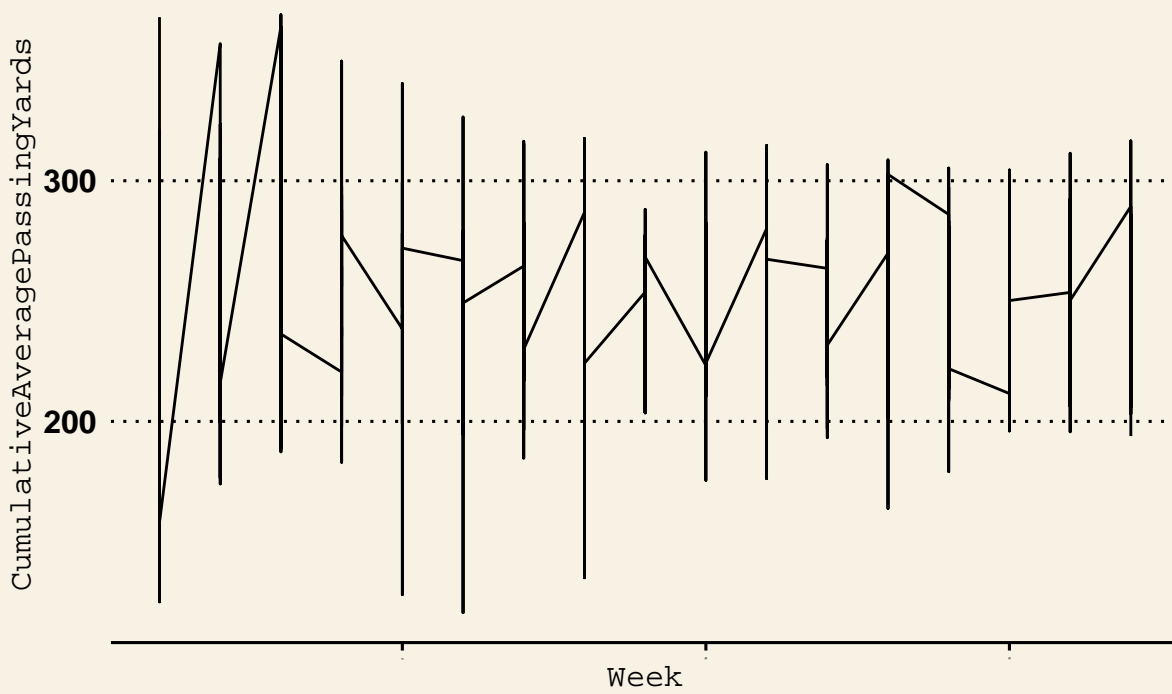
  line_plot <- line_ds %>%
    ggplot(aes_string(x="as.numeric(Week)",y=names(line_ds[p])))+
    ggtitle(names(line_ds[p]))+
    geom_line(show.legend = FALSE)+
    xlab("Week")+
    ylab(names(line_ds[p]))+
    labs(title="Fantasyfootball",
         subtitle=names(line_ds[p]),
         caption="Source: Fantasyfootball")+
    theme_wsj()+
    theme(plot.title = element_text(size = rel(0.5)),
          plot.subtitle = element_text(size = rel(0.5)),
          axis.text.x = element_text(angle=65, vjust=0.6,size=1),
          axis.title = element_text(size = rel(0.5)),
          legend.position = "right",
          legend.direction = "vertical",
          legend.title = element_text(size = rel(0.5)))

  print(line_plot)
}
```

Fantasyfootball
FantasyPoints

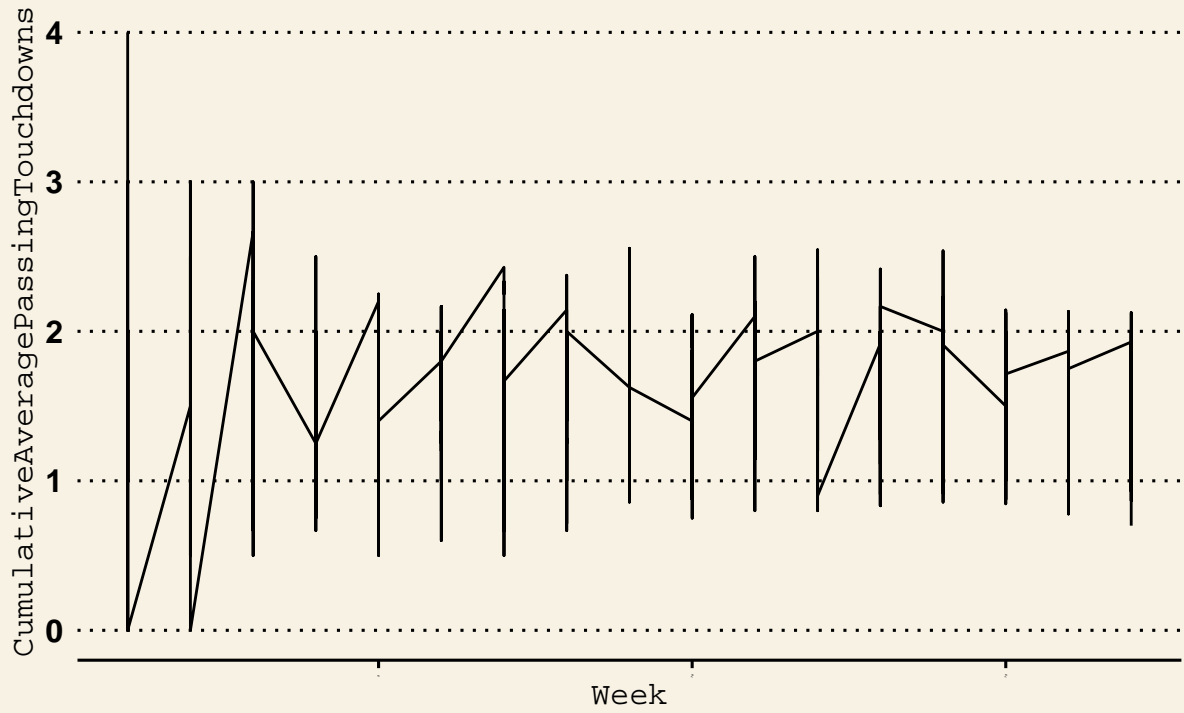


Fantasyfootball
CumulativeAveragePassingYards



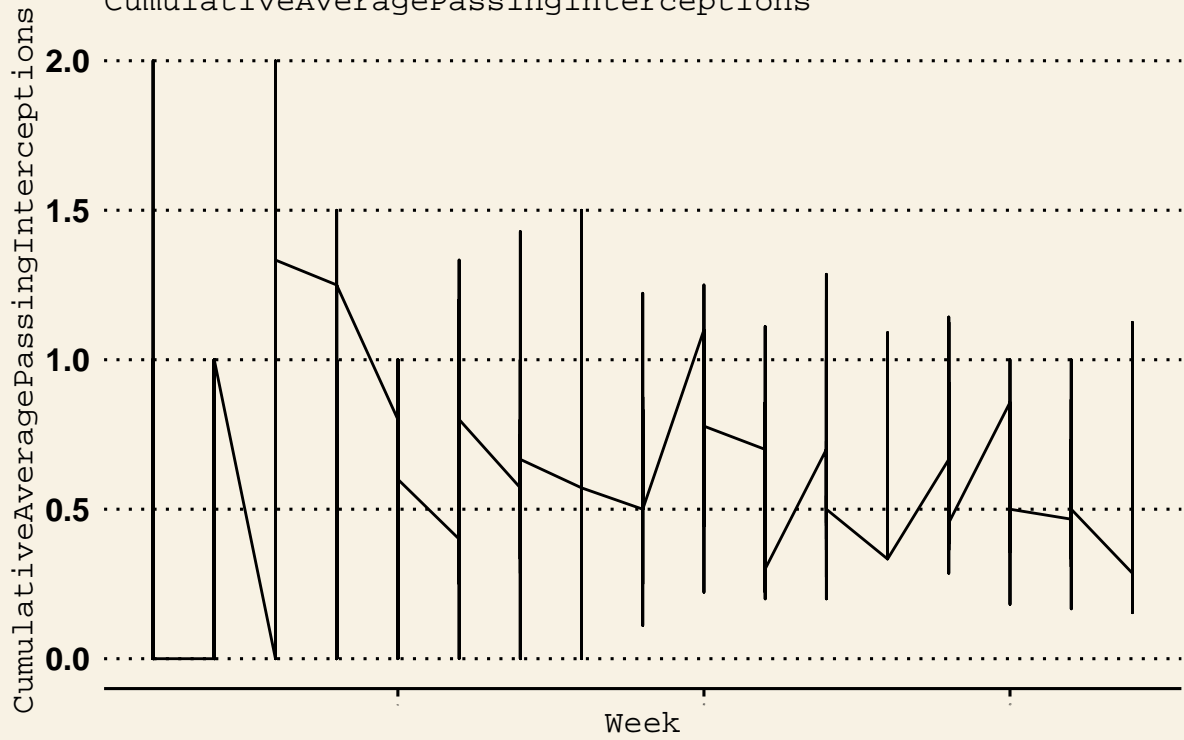
Fantasyfootball

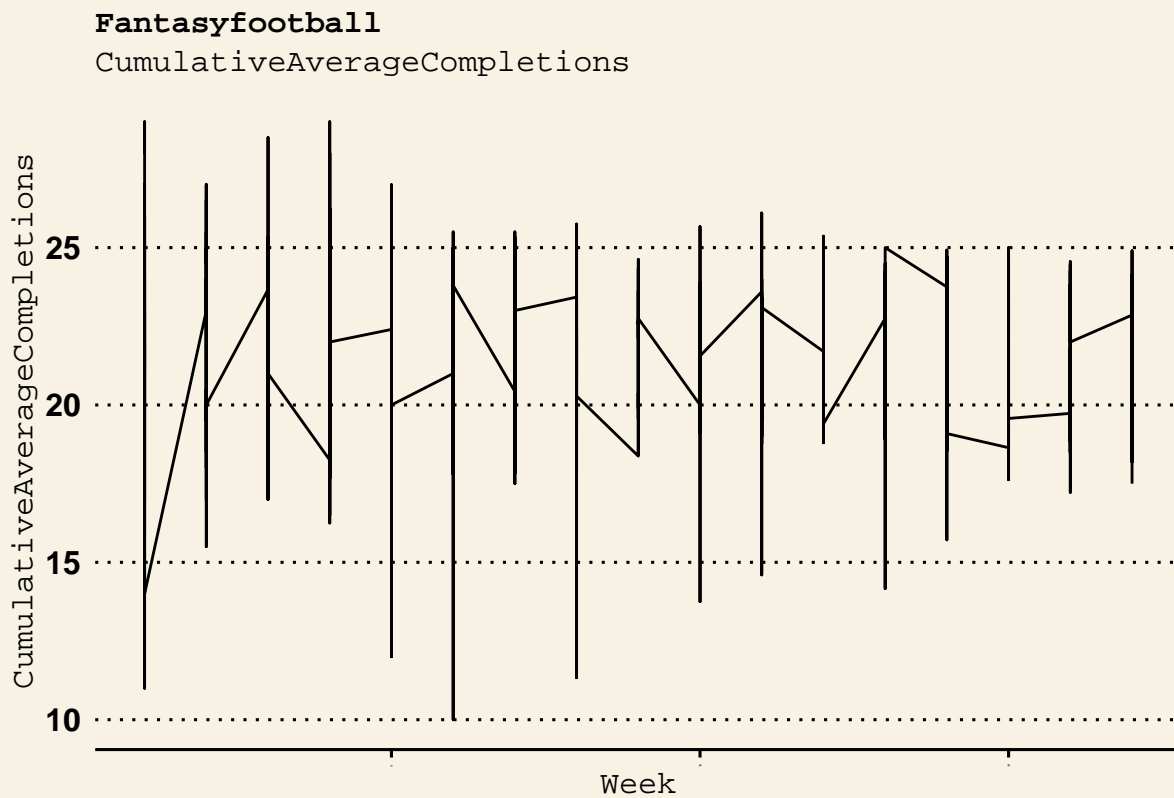
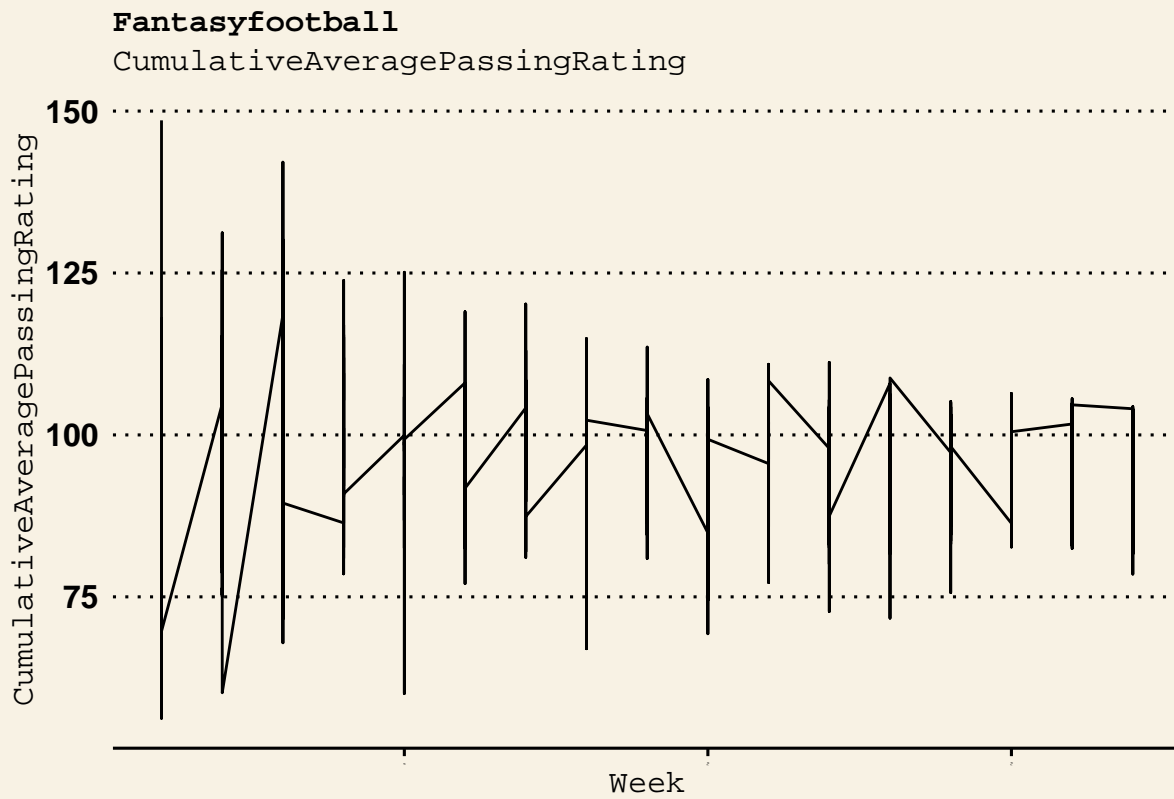
CumulativeAveragePassingTouchdowns

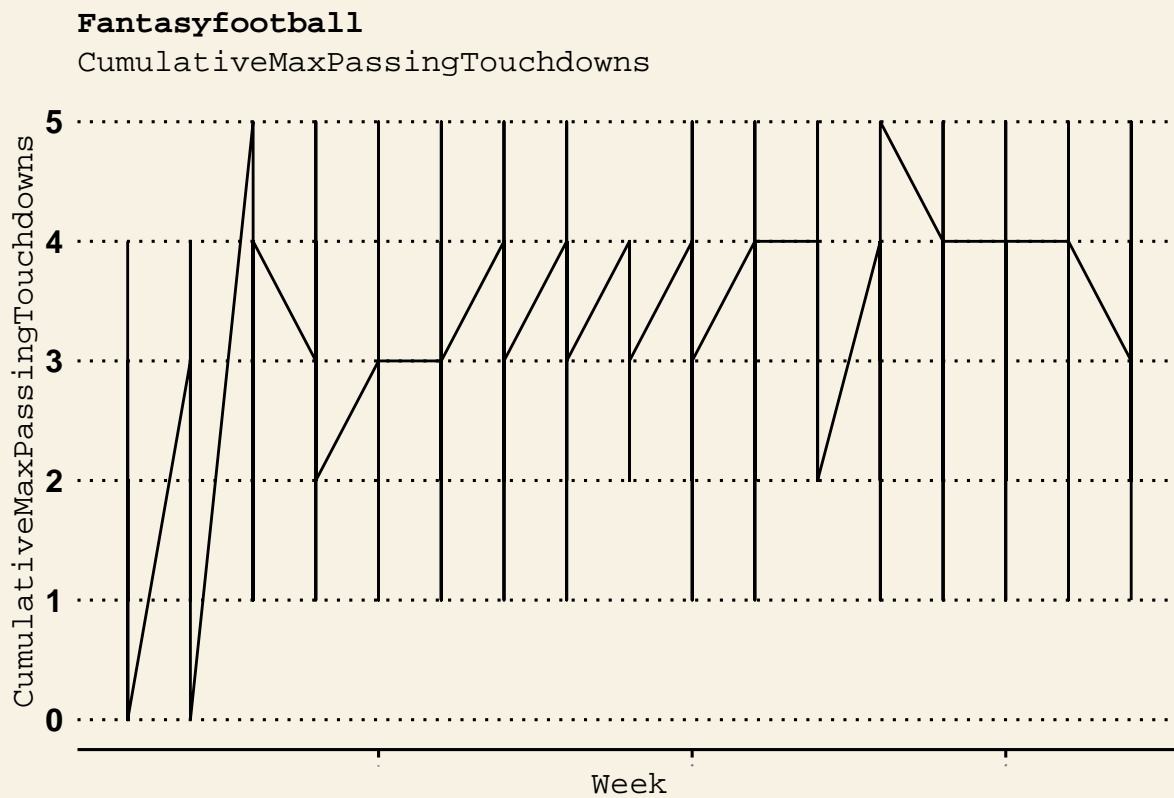
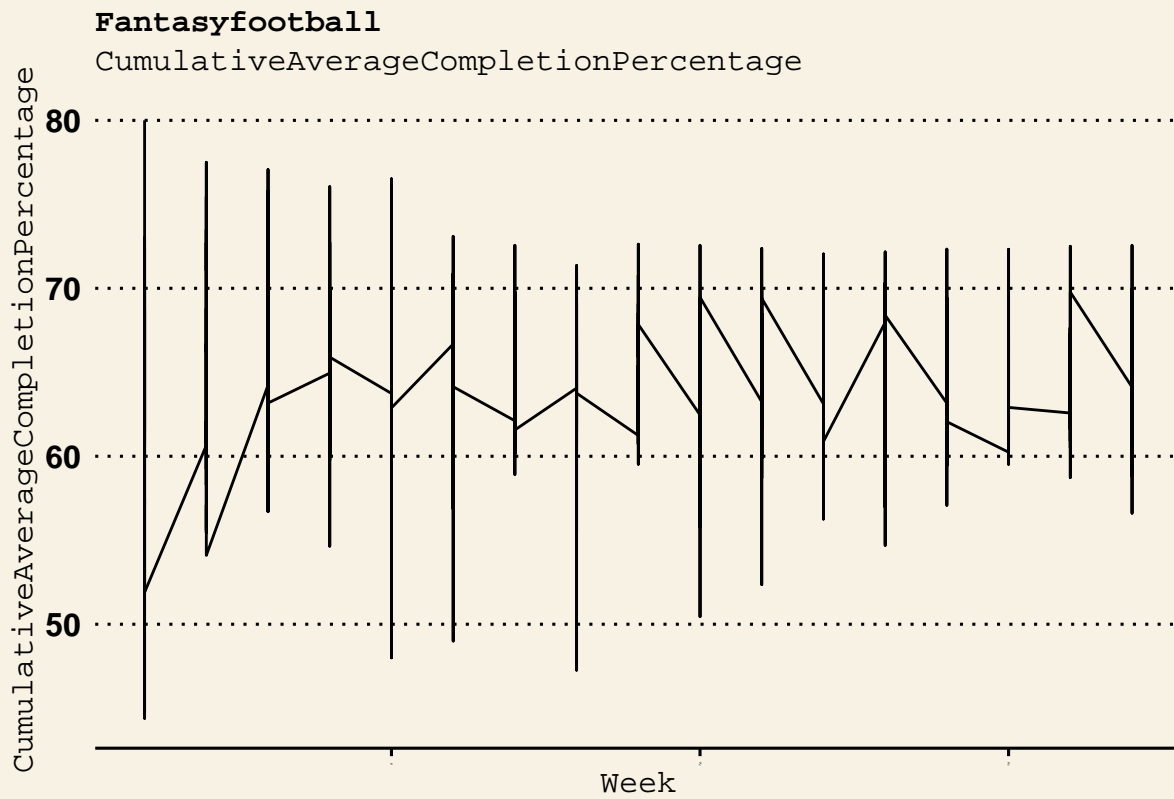


Fantasyfootball

CumulativeAveragePassingInterceptions

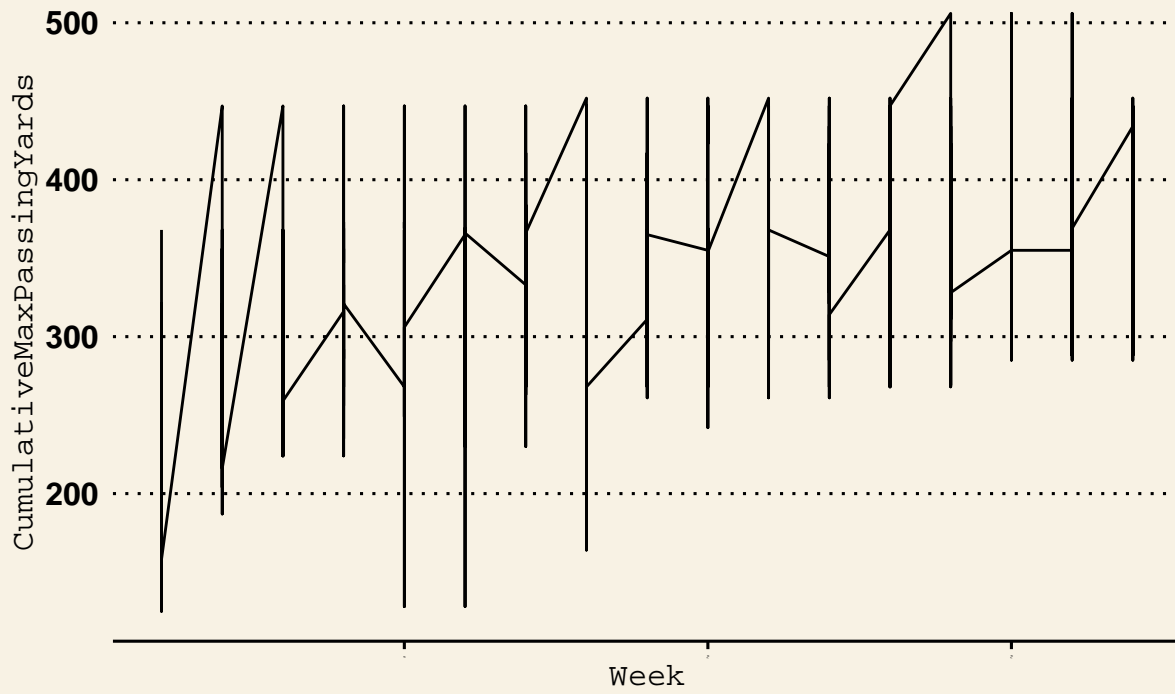






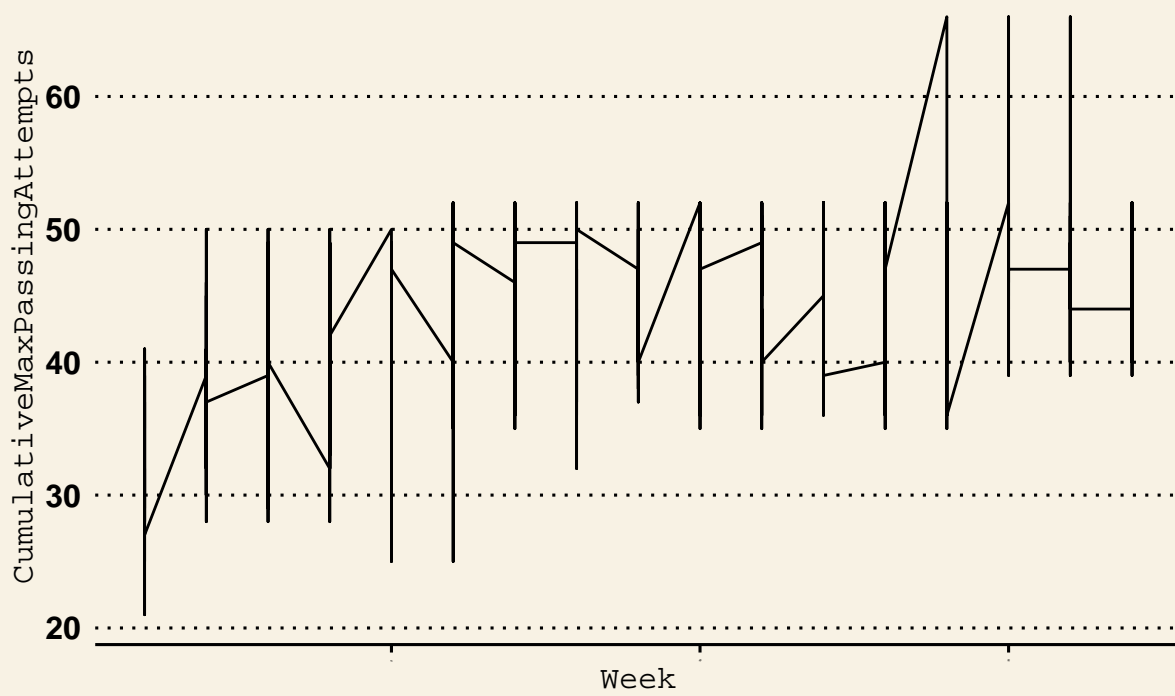
Fantasyfootball

CumulativeMaxPassingYards



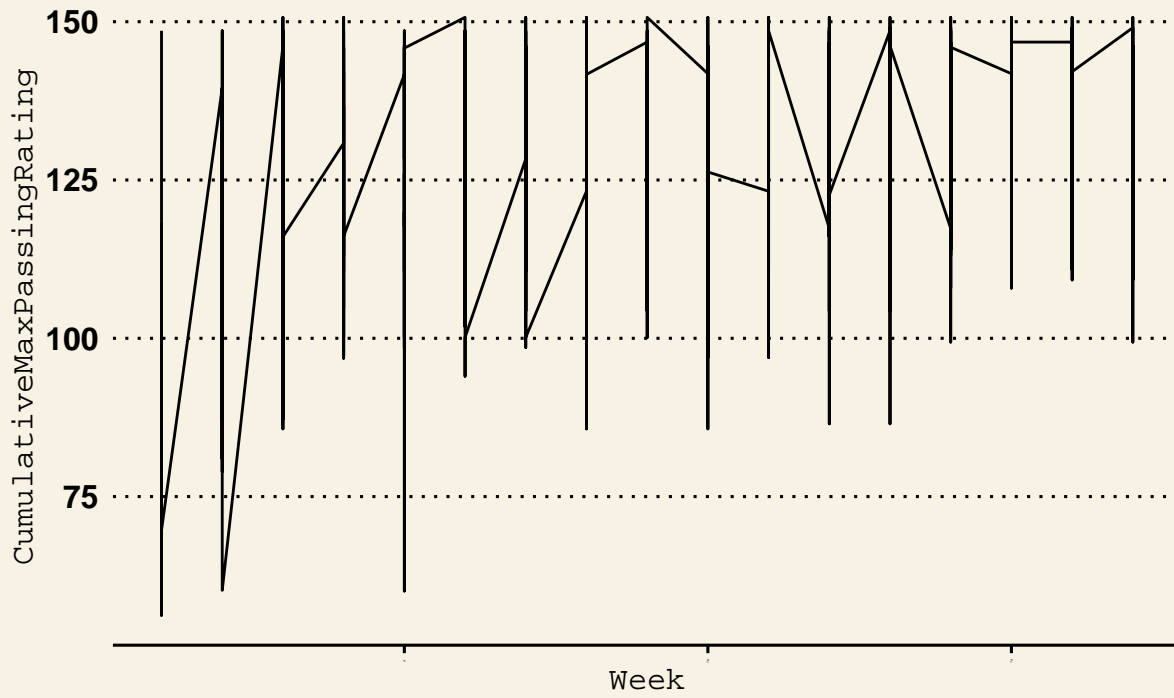
Fantasyfootball

CumulativeMaxPassingAttempts



Fantasyfootball

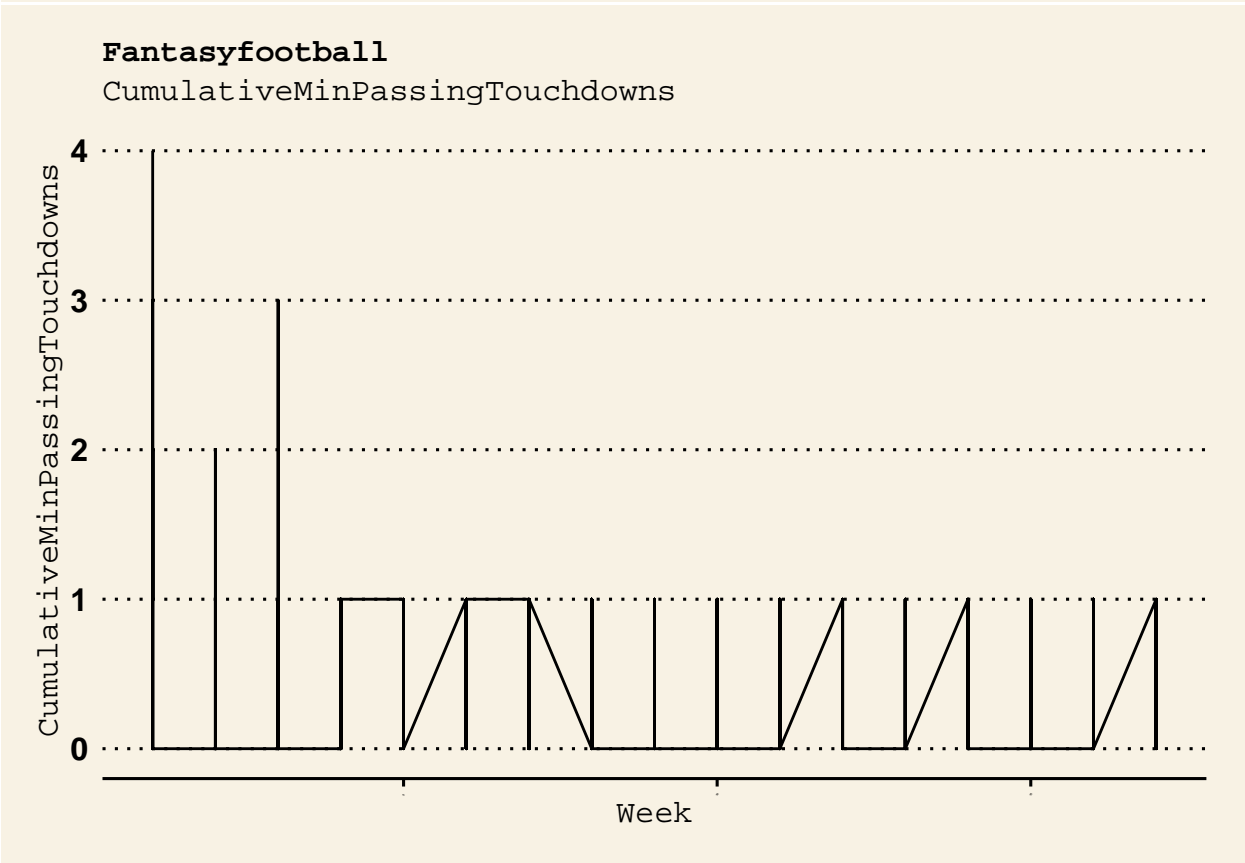
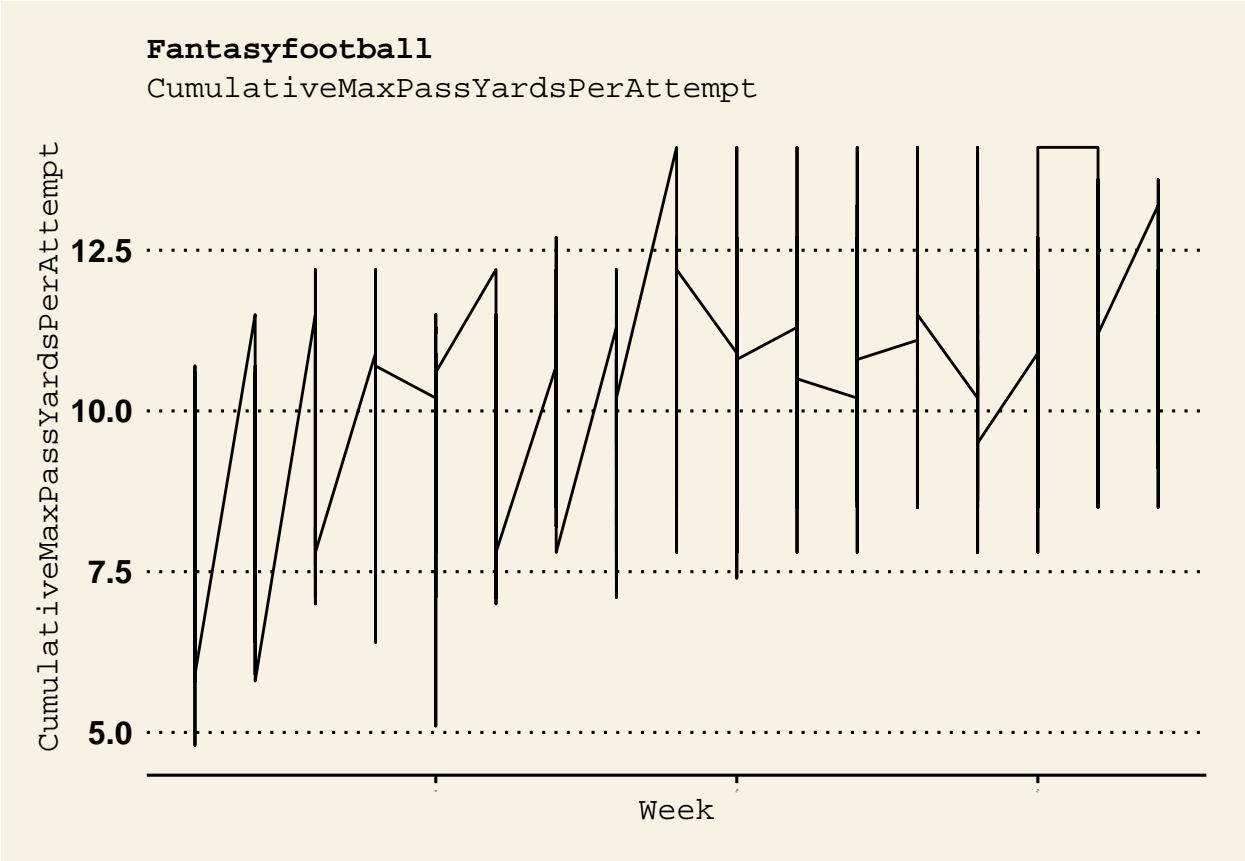
CumulativeMaxPassingRating



Fantasyfootball

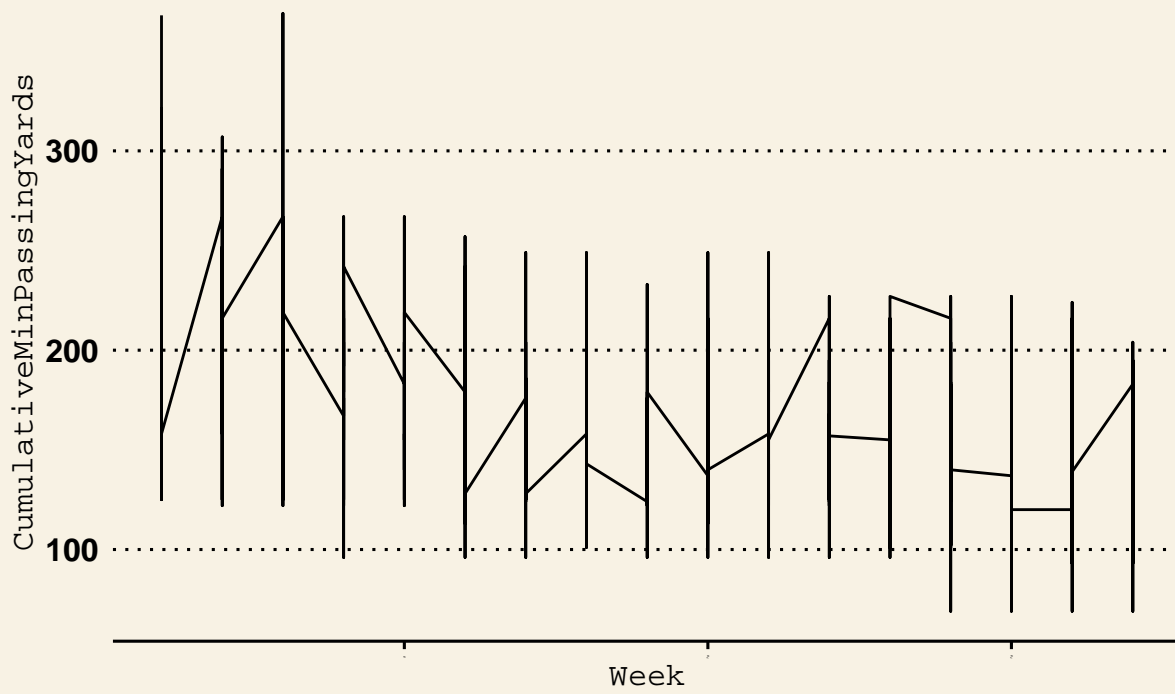
CumulativeMaxCompletions





Fantasyfootball

CumulativeMinPassingYards



Fantasyfootball

CumulativeMinPassingAttempts

