



# Play-by-Play

NFL game companion  
application



# Contents

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## INTRODUCTIONS

1 Team

2 Motivation

3 About

## API

4 ESPN

5 OPENAI Chat

6 OpenAI TTS

## HOME PAGE

7 OpenAI Key

8 Game Banners

9 News

## GAME PAGE

10 Statistics

11 Field UI

12 Commentators

## DEMONSTRATION

13 Showcase

## SUMMARY

14 Reflections

# Who Are We?

Jake Hannah

Derya Fathroen

Colin Lewandowski

Zach Rongstad

Cayden Maag



Brogan Murray





# Our vision



Create an immersive web application utilizing ESPN live updates for NFL games, that are commentated by AI.


LIVE

LIVE

LIVE

3:25PM

7:20PM

GREEN BAY PACKERS  
7-3

OFFENSE

PASSING	C/ATT	YDS	TD	INT	QBR
Jordan Love	13/17	261	1	1	88.8

RUSHING

	CAR	YDS	AVG	TD	LONG
Josh Jacobs	18	76	4.2	1	12
Emanuel Wilson	4	18	4.5	1	13

RECEIVING

	REC	YDS	AVG	TD	LONG
Christian Watson	4	150	37.5	0	60
Jayden Reed	2	23	11.5	1	15
Josh Jacobs	1	17	17.0	0	17

Jordan Love  
13/17, 261 YDS,  
1 TD, 1 INT

Jordan Love  
13/17, 261 YDS,  
1 TD, 1 INT

Jordan Love  
13/17, 261 YDS,  
1 TD, 1 INT

102ND Q  
10:1514






**Mitch**  
And there it is! A booming 43 yard punt from Morstead.

Wow, he kicked that really far... that's a good thing, right?

**Beny**  
Yes, Conny! That was a great punt.



MINNESOTA VIKINGS  
8-2

OFFENSE

DEFENSE	TOT	SOLO	SACKS	TD
Kevin Byard III	9	4	0	0
T.J. Edwards	7	1	0	0
Jaylen Johnson	6	5	0	0
Kyle Gordon	6	4	0	0

INTERCEPTIONS

	INT	YDS	TD
Torrell Smith	1	23	0

Jordan Love  
13/17, 261 YDS,  
1 TD, 1 INT

Jordan Love  
13/17, 261 YDS,  
1 TD, 1 INT

Jordan Love  
13/17, 261 YDS,  
1 TD, 1 INT

# Development Cycle

We chose an Agile development methodology for this project.

Sprints:

- 1) One-week prior to midterm.
- 2) Two weeks following midterm.

After each sprint we gathered to discuss process and issues we faced.

Incremental changes were pushed to a GitHub repository using Git branching.



# ESPN API

The ESPN API was utilized to retrieve live data, player statistics, and team information from ESPN's database

Specifically, we retrieved:

- Team
  - Names
  - Logos
  - Colors
  - Records
  - Rosters
- Game
  - Live plays
  - Scores
  - Player statistics
- General
  - Week schedule
  - News articles



This was accomplished by making different calls to ESPN's NFL API endpoints through C#'s HttpClient class, which allows us to send and receive HTTP requests and responses

# OpenAI Chat & TTS API

**OpenAI API** offers its chat models (GPT 4o, 4o mini, ...) through an API endpoint for asynchronous text generation. For this project, we fed live ESPN API data for current plays into the 4o mini model. The output received composed the chats for our commentators, Mitch and Donny.

**OpenAI API** requires:

- API Key
- Token Balance (4 characters per token generated)
- Endpoint connection via HTTP Client

**OpenAI TTS:** Our generated commentary is then fed into their TTS endpoint, which returns a byte string for an mp3 file. This stream is input for Mitch and Donny's vocal commentary.



Mitch

And there you have it, folks! J. Bates nails a solid 35-yard field goal, proving once again that kicking a football is about as easy as Donny trying to find the end zone on a Saturday night!



Donny

I mean, is that, uh, good? Does it count as six points or something—wait, that's not right, is it?



Mitch

Not quite there, buddy! But hey, at least you're two out of three with the field goal part. Now let's see if K. Nixon can return from that injury faster than you can figure out what a two-point conversion is!

Generate and Play Audio

Back End (Brogan)

# OpenAI Chat & TTS API





























# Home Page

Week 14 ▾



Sunday - 12/08

 0	Q1 4:50	3	
 7	Q1 4:17	0	
 0	Live	0	
 0	Q1 5:55	7	
 3:25 PM			
 3	Q1 5:19	6	
 0	Live	0	
 7	Q1 5:50	3	
 3:05 PM			
 3:25 PM			
 7:20 PM			

Thursday - 12/05

 31	Final	34	
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Monday - 12/09

 7:15 PM		
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# OpenAI Key

In order to access the commentators feature of our app the user needs to provide their own OpenAI api key.

For this we included:

- Input for org key
- Input for personal key
- Reset button to input new key

The screenshot displays the 'NFL-Play-By-Play' app interface. At the top, there's a header with the NFL logo and the text 'NFL-Play-By-Play'. Below this, a navigation bar shows 'Week 14' and a dropdown arrow. The main content area is divided into sections for different days of the week. The 'Thursday - 12/05' section shows a game summary: 'G 31' vs '34' with a 'Final' status. The 'Sunday - 12/08' section lists several games with their start times (12:00 PM, 3:05 PM, 3:25 PM, 7:20 PM) and team logos. The 'Monday - 12/09' section shows a game at 7:15 PM. At the bottom, there's a 'Latest Articles' section with three articles, each featuring a small image and a headline. A red box highlights the top right corner of the app, containing a 'Reset Key' button and two input fields labeled 'OpenAI Org Key' and 'OpenAI Key'.

Reset Key

OpenAI Org Key OpenAI Key Submit

Week 14 ▾

Thursday - 12/05

G 31 Final 34

Sunday - 12/08

12:00 PM 12:00 PM 12:00 PM 12:00 PM 12:00 PM 12:00 PM 12:00 PM 12:00 PM 3:05 PM 3:25 PM 3:25 PM 7:20 PM

Monday - 12/09

7:15 PM

Latest Articles

[Giants will try to snap a 7-game losing streak when they host the Saints](#)  
New Orleans (4-8) at New York Giants (2-10)

[New Jets receiver Josh Reynolds ready to move on from shooting](#)  
New Jaguars receiver Josh Reynolds didn't want to get into details about an October shooting that left him wounded, other than to say he was eager to move forward with his NFL career.

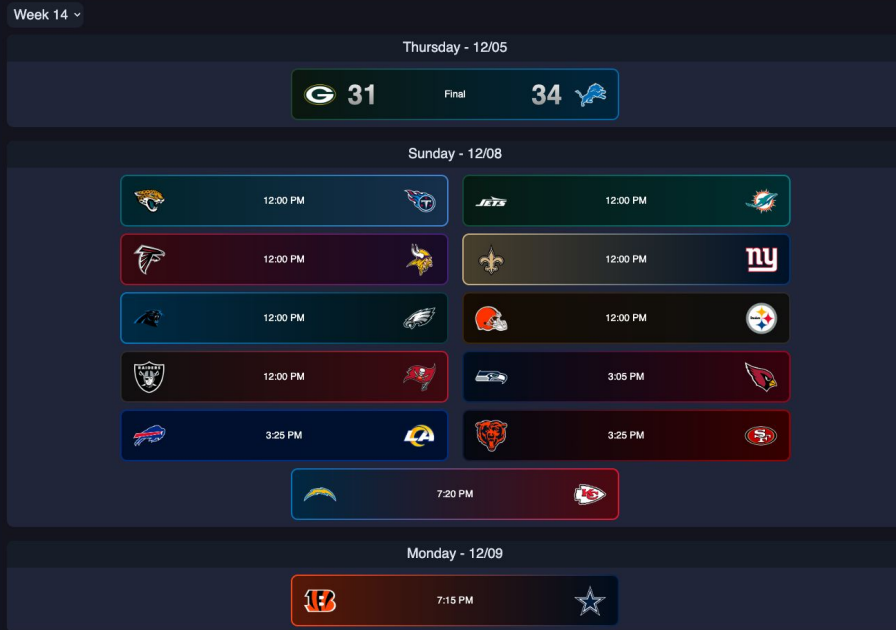
[NFL ends probe of Browns' Watson in latest sexual assault case](#)  
The NFL has ended its review of sexual assault allegations levied against Browns quarterback Deshaun Watson in September, a league spokesperson told ESPN.

# Game Banners

In order for the user to view all of the games for a given week, we display a custom game banner based on the game being played.

For this we included:

- Week selector
- Sorted list of games
- Custom banners



# News

We were able to access news articles by sending a request to the ESPN NFL articles endpoint.

From there, we retrieved:

- Headlines
- Descriptions
- Images
- A URL that points to article



[Bengals place LB Logan Wilson on injured reserve with knee injury](#)

The Bengals have placed linebacker Logan Wilson on injured reserve with a knee injury, the team announced Friday.



[Giants will try to snap a 7-game losing streak when they host the Saints](#)

New Orleans (4-8) at New York Giants (2-10)



[New Jags receiver Josh Reynolds ready to move on from shooting](#)

New Jaguars receiver Josh Reynolds didn't want to get into details about an October shooting that left him wounded, other than to say he was eager to move forward with his NFL career.



[NFL ends probe of Browns' Watson in latest sexual assault case](#)

The NFL has ended its review of sexual assault allegations levied against Browns quarterback Deshaun Watson in September, a league spokesperson told ESPN.



[ESPN+ Cheat Sheet: Our best fantasy football advice for Week 14](#)

We've curated a week's worth of our best fantasy football advice in a single game-by-game cheat sheet so you can quickly make your lineup decisions for Week 14.

# Game Page

Green Bay Packers

9-4

OFFENSE DEFENSE SPECIAL TEAMS

PASSING	C/ATT	YDS	AVG	TD	INT	SACKS	QBR	RTG
Jordan Love	12/20	206	10.3	1	0	1-7	92.4	111.7
RUSHING	CAR	YDS	AVG	TD	LONG			
Josh Jacobs	18	66	3.7	3	19			
Jordan Love	4	23	5.8	0	14			
Emanuel Wilson	1	7	7.0	0	7			
Chris Brooks	1	3	3.0	0	3			
RECEIVING	REC	YDS	AVG	TD	LONG	TGTS		
Christian Watson	4	114	28.5	0	59	7		
Dontayvion Wicks	4	49	12.3	0	26	5		
Tucker Kraft	3	41	13.7	1	21	5		
Ben Sims	1	2	2.0	0	2	1		
Jayden Reed	0	0	0.0	0	0	1		
FUMBLES	FUM		LOST		REC			
Christian Watson	1		1		0			

PASSING	RUSHING	RECEIVING
<div><div></div><div>Jordan Love</div></div>	<div><div></div><div>Josh Jacobs</div></div>	<div><div></div><div>Christian Watson</div></div>

G


31

Final

34









**Mitch**

And there you have it, folks! J. Bates nells a 35-yard field goal like a seasoned pro--no pressure at all! You know, Donny, if I had a dime for every perfect kick, I could buy you a clue!



**Danny**

Hai! That's a good one, Mitch! But wait, does that mean we keep score on kicks, too? I thought we just counted touchdowns and snacks!



**Mitch**

Well, Donny, field goals are like the appetizers of football--important but nobody comes for just that! So, keep your snacks and your stats straight, my friend; we want you armed with more than just nachos next Sunday!

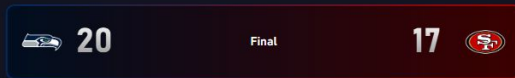
Generate and Play Audio

PASSING	RUSHING	RECEIVING
<div><div></div><div>Jared Goff</div></div>	<div><div></div><div>David Montgomery</div></div>	<div><div></div><div>Jameson Williams</div></div>



# Field UI

- Simple football field diagram to represent the home team of each game
- The live plays are drawn onto the football field to illustrate the two major types of plays
- The position of the ball on the field is also drawn in with the logo of the team with possession above that dot



Mitch

Well, Donny, that was an interesting play—Purdy with the short pass to Deebo, a little lateral to McKivitz like it's backyard football! What's next? A game of tag?



Donny

Uh, yeah, I mean... I-lateral sounds cool, right? Like, they're passing it back and forth... trying not to get caught, I guess?



Mitch

Exactly! Except this isn't recess at middle school, buddy! They fumbled, and Seattle's D. Hall jumped on that like you jump on the last slice of pizza—definitely not a play you want to see from a professional level!

Generate and Play Audio

# Demonstration



# Reflections

## Challenges & solutions:

- ESPN Api updates for the play-by-play endpoint oftentimes occur infrequently.
- Proper variable states and page reloads were difficult to navigate with blazor. Microsoft documentation provided the needed context to solve this issue.
- Improperly structured repository—solved using a git version control revert to a different home folder.

## Moving forward:

- Starting earlier with development and feature refinement.
- Keeping Main and Develop branches up to date.

Q&A