

# 棒球數據管理 及分析系統

113下學期彙整報告



# 這學期做了什麼

## 建立資料庫

使用MySQL建立相關資料庫管理數據

## 架設後端

建構好後端與伺服器的互動

## 建立前端介面

建立方便使用者閱讀及使用的介面

# 建立資料庫



# 主要資料庫

batter：打者數據

pitcher：投手數據

team:球隊數據

matchup：比賽每顆球的數據



MySQL Workbench

Local instance MySQL91

FileEditViewQueryDatabaseServerToolsScriptingHelp

Navigator

SCHEMAS

Filter objects

player

Tables

batter

matchup

pitcher

team

Views

Stored Procedures

Functions

sakila

sys

team

world

team

batter

pitcher

team

team

pitcher

batter

matchup

Limit to 1000 rows

1 •

SELECT \* FROM player.batter;

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Fetch rows:

	Name	ID	Year	Team	Division	Type	PA	AB	H	H2	H3	HR	RBI	SO	BB	SB	CS	AVG	OBP
▶	Wilson Ramos	467092	2021	DET	American League Central	Batter	128	120	24	5	0	6	13	29	6	0	0	0.200	0.238
	Wilson Ramos	467092	2021	CLE	American League Central	Batter	35	31	7	0	0	2	7	7	3	0	0	0.226	0.286
	Wilson Ramos	467092	2021	2 Teams	American League Central	Batter	163	151	31	5	0	8	20	36	9	0	0	0.205	0.248
	Bradley Zimmer	605548	2021	CLE	American League Central	Batter	348	299	68	9	1	8	35	122	30	15	3	0.227	0.325
	Josh Naylor	647304	2021	CLE	American League Central	Batter	250	233	59	13	0	7	21	45	14	1	0	0.253	0.301
	Owen Miller	680911	2021	CLE	American League Central	Batter	202	191	39	8	0	4	18	54	9	2	0	0.204	0.243
	Ernie Clement	676391	2021	CLE	American League Central	Batter	133	121	28	4	0	3	9	19	7	0	1	0.231	0.285
	Andrés Giménez	665926	2021	CLE	American League Central	Batter	210	188	41	10	0	5	16	54	11	11	0	0.218	0.282
	Austin Hedges	595978	2021	CLE	American League Central	Batter	312	286	51	7	0	10	31	87	15	1	0	0.178	0.220
	Myles Straw	664702	2021	HOU	American League Central	Batter	370	325	85	13	1	2	34	71	38	17	5	0.262	0.339
	Myles Straw	664702	2021	CLE	American League Central	Batter	268	239	68	16	0	2	14	50	29	13	1	0.285	0.362
	Myles Straw	664702	2021	2 Teams	American League Central	Batter	638	564	153	29	1	4	48	121	67	30	6	0.271	0.349
	Bobby Bradley	656252	2021	CLE	American League Central	Batter	279	245	51	10	0	16	41	99	25	0	0	0.208	0.294
	Yu Chang	644374	2021	CLE	American League Central	Batter	251	237	54	14	3	9	39	69	11	1	0	0.228	0.267
	Franmil Reyes	614177	2021	CLE	American League Central	Batter	466	418	106	18	2	30	85	149	43	4	1	0.254	0.324
	Roberto Pérez	547379	2021	CLE	American League Central	Batter	161	141	21	3	0	7	17	56	17	1	0	0.149	0.245
	Harold Ramírez	623012	2021	CLE	American League Central	Batter	361	320	81	21	1	7	41	56	14	2	1	0.258	0.305

batter 1

Read Only

Object Info

Session

Output

# 架設後端



# API

players : 回傳所有選手名字跟ID

teams : 回傳所有球隊名稱

selected\_player : 回傳特定選手的數據

team\_stats : 回傳特定球隊的數據

players\_stats : 回傳所有符合篩選條件的選手數據

league\_team\_stats : 回傳所有球隊的數據

player\_lookup : 回傳選手ID方便實現後續跳轉功能

matchup : 回傳投打對決過程的每一顆球的數據

PitcherPitches : 回傳投手的用球數據

```
@app.route("/api/matchup")
def matchup():
    pitcher_id = request.args.get("pitcher")
    batter_id = request.args.get("batter")

    if not pitcher_id or not batter_id:
        return jsonify({"error": "Missing pitcher or batter ID"}), 400

    conn = mysql.connector.connect(**db_config)
    cursor = conn.cursor(dictionary=True)

    try:
        query = """
            SELECT game_date, pitch_type, description, release_speed, zone, events
            FROM matchup
            WHERE pitcher_id = %s AND batter_id = %s
            ORDER BY game_date DESC
        """
        cursor.execute(query, (pitcher_id, batter_id))
        result = cursor.fetchall()



        cursor.close()
        conn.close()
        return jsonify(result)
    except Exception as e:
        return jsonify({"error": str(e)}), 500
```



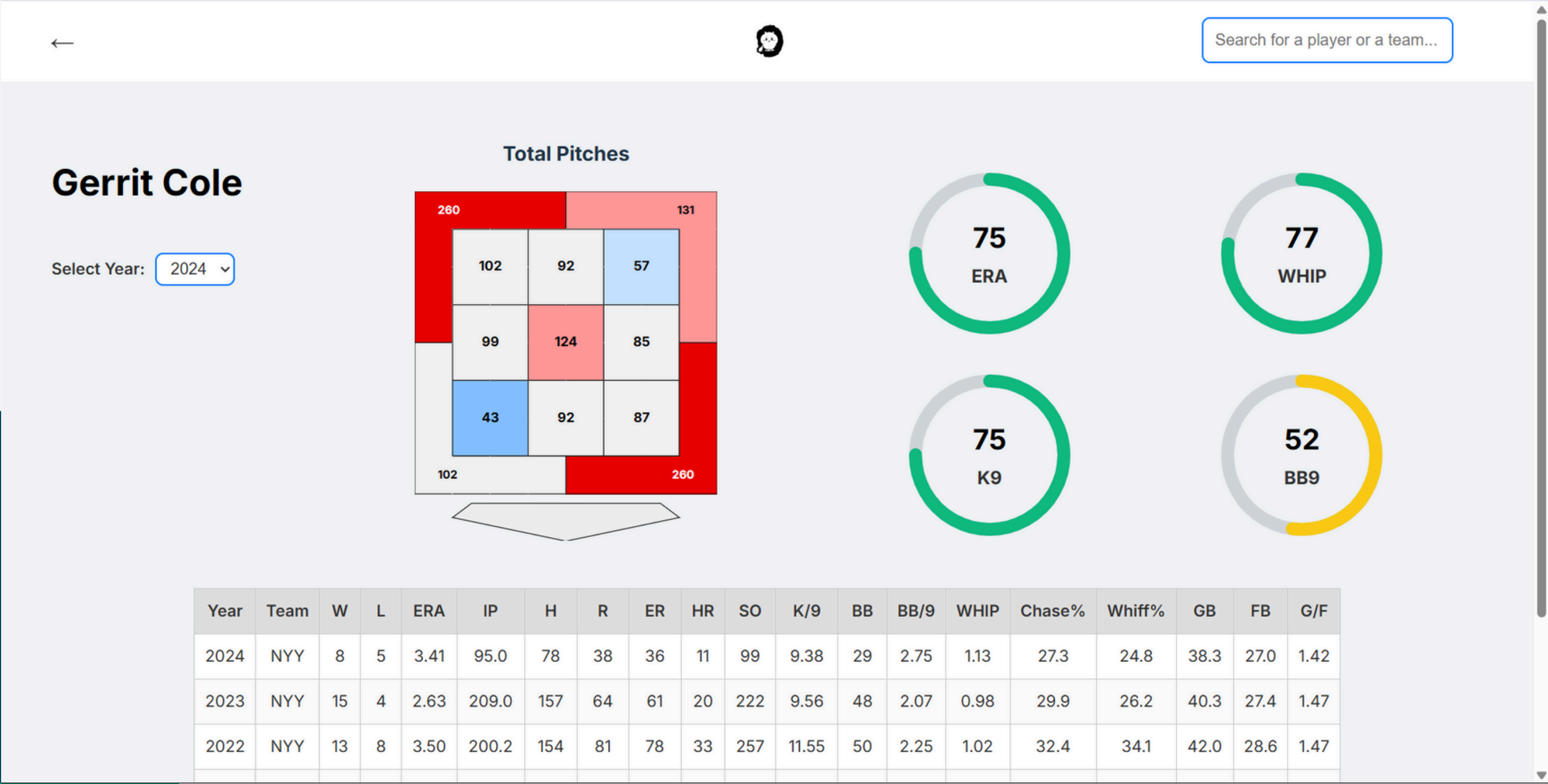
# 建立前端介面



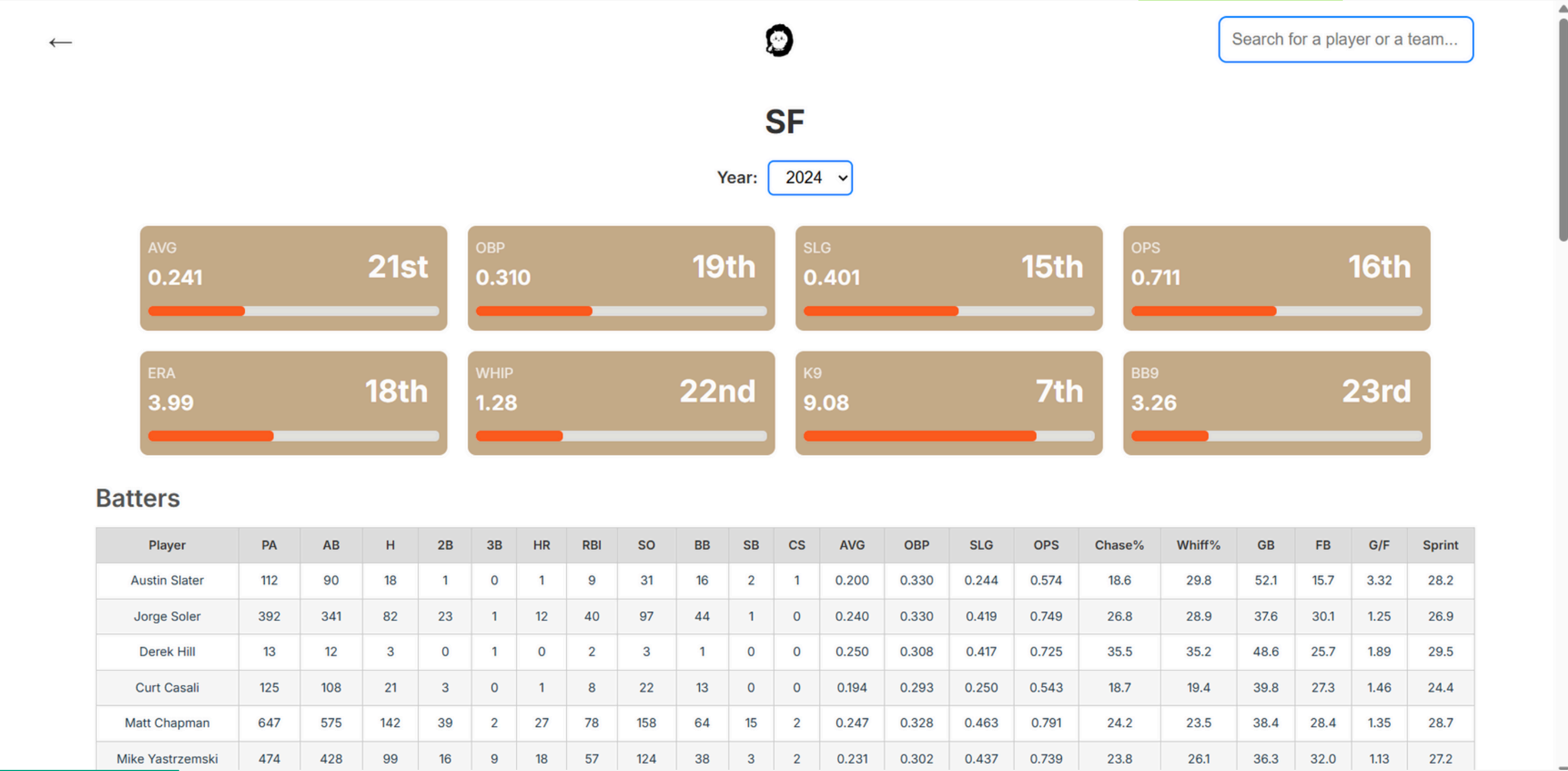
# 頁面

- 選手個人成績頁面
  - 球隊成績頁面
  - 單項成績排行
  - 同類型選手比較
  - 投打對決
- 
- 

# 選手個人成績頁面




# 球隊成績頁面



# 單項成績排行

←



Search for a player or a team...

TOP10

Select Year: 2024

More →

打擊率

安打

全壘打

打點

盜壘

1	Bobby Witt Jr. (KC)	0.332
2	Vladimir Guerrero Jr. (TOR)	0.323
3	Aaron Judge (NYY)	0.322
4	Luis Arraez (2 Teams)	0.314
5	Carlos Correa (MIN)	0.310
6	Shohei Ohtani (LAD)	0.310
7	Yordan Alvarez (HOU)	0.308
8	Marcell Ozuna (ATL)	0.302
9	Yainer Diaz (HOU)	0.299
10	Jose Altuve (HOU)	0.295

ERA

勝投

三振


WHIP

K/9

1	Paul Skenes (PIT)	1.96
2	Reynaldo López (ATL)	1.99
3	Tyler Holton (DET)	2.19
4	Chris Sale (ATL)	2.38
5	Tarik Skubal (DET)	2.39
6	Zack Wheeler (PHI)	2.57
7	Derek Law (WSH)	2.60
8	Hunter Greene (CIN)	2.75
9	Ronel Blanco (HOU)	2.80
10	Clarke Schmidt (NYY)	2.85

# 單項成績排行

←



Search for a player or a team...

Leaderboard Detail

Type: Batter

Year: 2024

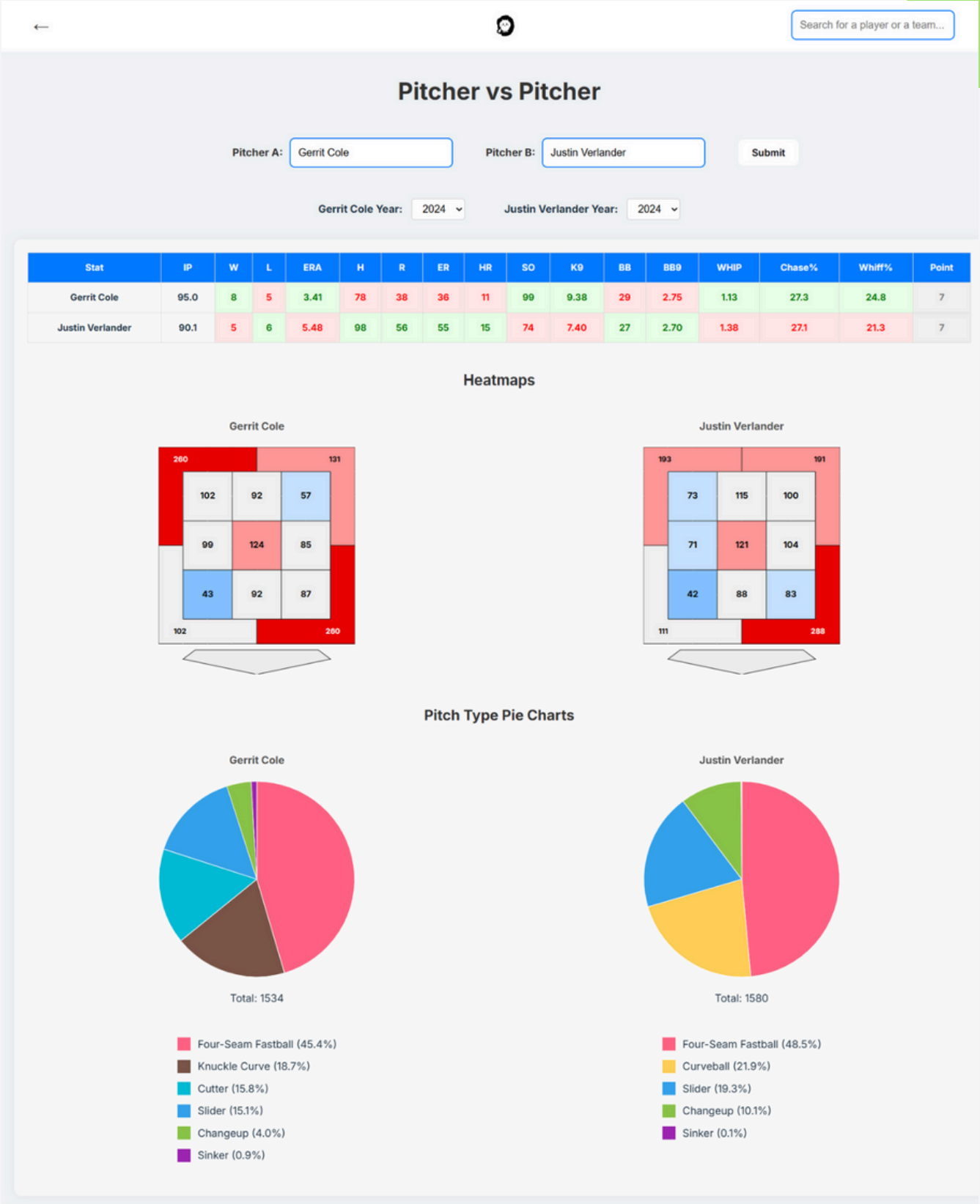
Setting

Reset

Name	Team	PA	AB	H	2B	3B	HR	RBI	SO	BB	SB	CS	AVG	OBP	SLG	OPS	Chase%	Whiff%	GB%	FB%	G/F	Sprint
Jarren Duran	BOS	735	671	191	48	14	21	75	160	54	34	7	0.285	0.342	0.492	0.834	28.1	24.8	46.8	21.0	2.2	29.6
Shohei Ohtani	LAD	731	636	197	38	7	54	130	162	81	59	4	0.310	0.390	0.646	1.036	26.6	29.8	36.3	31.3	1.2	28.1
Gunnar Henderson	BAL	719	630	177	31	7	37	92	159	78	21	4	0.281	0.364	0.529	0.893	23.2	24.4	47.4	23.6	2.0	28.9
Marcus Semien	TEX	718	650	154	27	2	23	74	105	64	8	3	0.237	0.308	0.391	0.699	25.2	20.2	39.6	30.0	1.3	28.5
Juan Soto	NYY	713	576	166	31	4	41	109	119	129	7	4	0.288	0.419	0.569	0.988	18.3	21.5	44.7	27.8	1.6	26.8
Bobby Witt Jr.	KC	709	636	211	45	11	32	109	106	57	31	12	0.332	0.389	0.588	0.977	32.1	22.3	37.5	30.5	1.2	30.5
Aaron Judge	NYY	704	559	180	36	1	58	144	171	133	10	0	0.322	0.458	0.701	1.159	18.7	30.7	31.5	38.7	0.8	26.8
Vladimir Guerrero Jr.	TOR	697	616	199	44	1	30	103	96	72	2	2	0.323	0.396	0.544	0.940	27.5	21.5	47.7	21.2	2.3	27.2
Elly De La Cruz	CIN	696	618	160	36	10	25	76	218	69	67	16	0.259	0.339	0.471	0.810	26.9	33.4	47.1	24.8	1.9	30.0
Ezequiel Tovar	COL	695	655	176	45	4	26	78	200	23	6	5	0.269	0.295	0.469	0.764	44.1	33.5	34.5	33.6	1.0	28.1
Pete Alonso	NYM	695	608	146	31	0	34	88	172	70	3	0	0.240	0.329	0.459	0.788	25.9	24.7	42.0	28.2	1.5	26.1
Bryan Reynolds	PIT	692	622	171	29	3	24	88	156	57	10	2	0.275	0.344	0.447	0.791	30.2	29.4	46.1	26.7	1.7	28.0

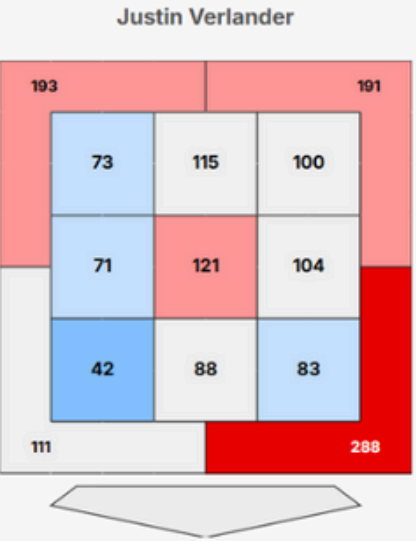
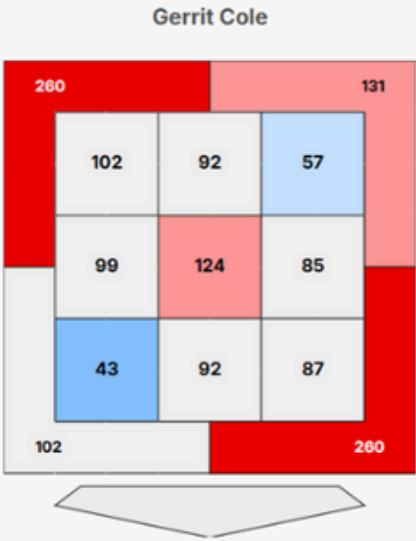


# 同類型選手比較(投手版)

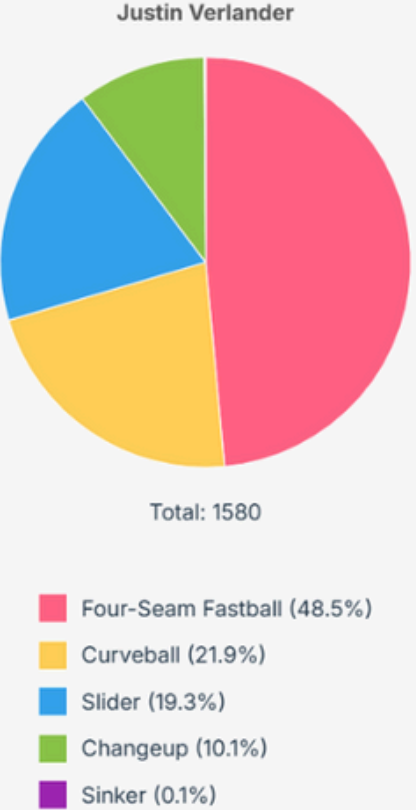
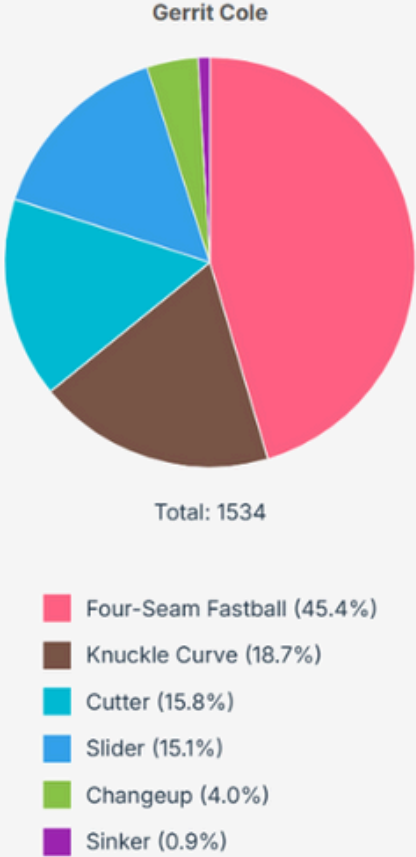


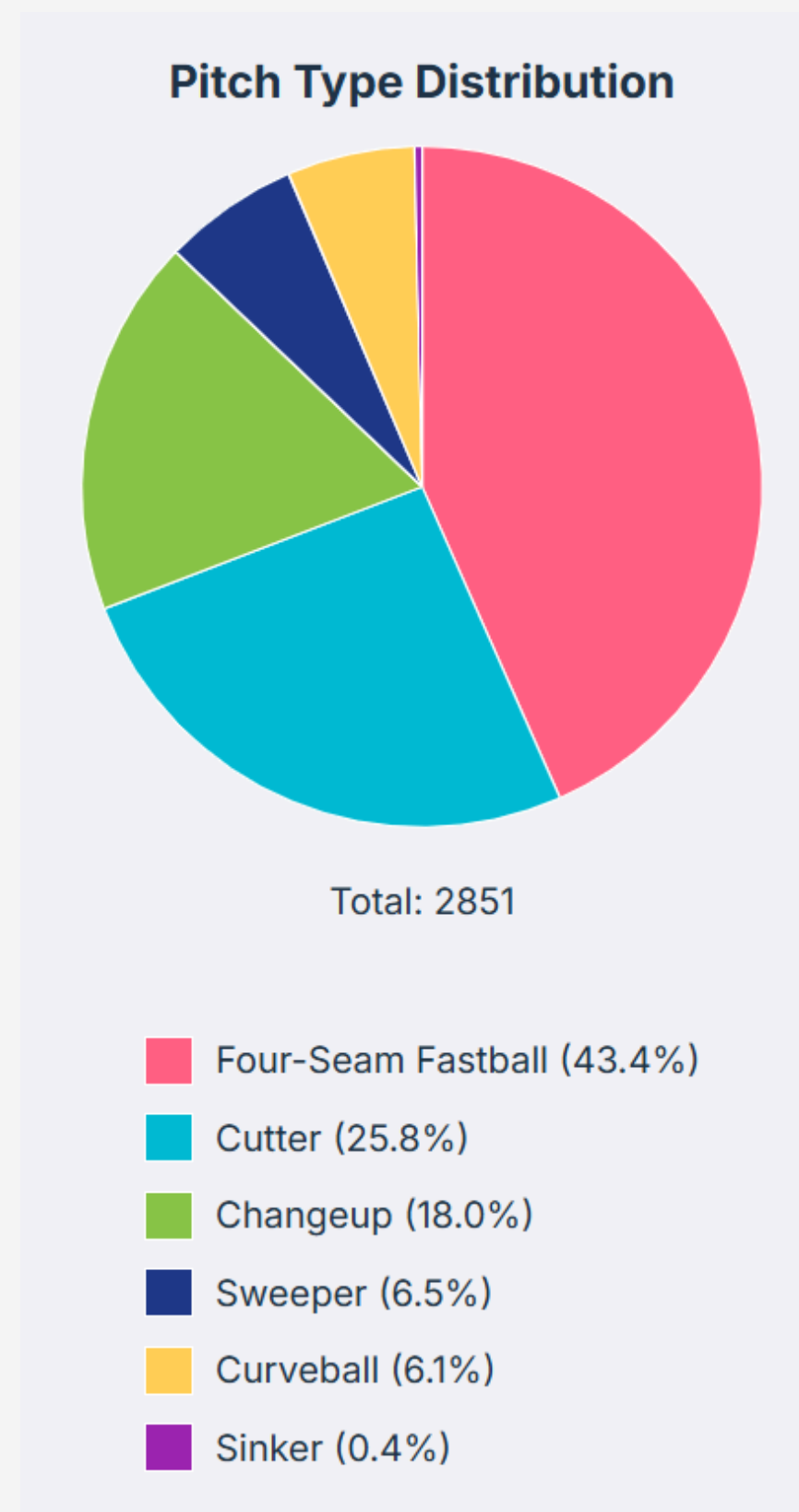


Heatmaps



Pitch Type Pie Charts





# 同類型選手比較(打者版)

←



Search for a player or a team...

Batter vs Batter

Batter A:

Batter B:

Submit

Giancarlo Stanton Year:

Freddie Freeman Year:

Stat	PA	H	2B	3B	HR	RBI	SO	BB	SB	AVG	OBP	SLG	OPS	Chase%	Whiff%	Point
Giancarlo Stanton	459	97	20	0	27	72	143	38	0	0.233	0.298	0.475	0.773	31.0	34.4	1
Freddie Freeman	638	153	35	2	22	89	100	78	9	0.282	0.378	0.476	0.854	26.6	20.2	13

Heatmaps

Giancarlo Stanton

0.118

0.188

0.111

0.208

0.263

0.294

0.250

0.333

0.160

0.488

0.234

0.147

0.103

Freddie Freeman

0.120

0.167

0.294

0.250

0.130

0.415

0.403

0.222

0.217

0.415

0.361

0.194

0.195

# 整體進度

## 1.爬蟲

先利用Selenium從  
Basebaall Savant上  
獲取資料

## 2.建立資料庫

使用MySQL建立相  
關資料庫管理數據

## 3.架設後端

建構好後端與伺服器  
的互動

## 4.建立前端介面

建立方便使用者閱讀  
及使用的介面



# 暑假進度

- 優化頁面
- 擴大資料項目
- 預測功能



**Thank  
You**

