

Thank you for your application to the Baseball Systems Developer position. We were impressed by your application and would like you to complete a software development project as a way for us to find out more about your technical and creative skills.

Please choose **one** of the three projects outlined below and submit your solution to this email address by **5pm on Monday 20th December**. Please submit your project code and any associated files needed to run the project either by sending us the source files attached to the email or sending us a link to a repository (Github, Bitbucket or similar). You should expect to hear back from us in the week beginning January 3rd.

Please include a readme with instructions for how to run your solution either in the email or alongside the source code. You may also wish to deploy your project and send us the URL but this is not required.

We understand that you may be under challenging time constraints and don't expect your project to be production-ready or include features that go far beyond the basic requirements. You may use any applicable technologies. Please let us know if you have any questions or require any additional information.

Projects

Project 1 – Team and Player Stats Application

Task: Build a web application which displays MLB team rosters and player statistics.

Features your application should include:

- A page/view listing all MLB teams
- A page/view for each team showing the players on their roster
- A page/view for each player displaying some biographical information (name, age, height, weight, etc.) and tables of the player's seasonal batting and/or pitching statistics

The data required for the application can be retrieved from the MLB StatsAPI (see the *Resources* section below). You may choose to build your application directly using the StatsAPI or download the data to a local database or files if you prefer.

Project 2 – Scouting Report Entry Application

Task: Build a web application for entering and retrieving basic scouting reports on players

Features your application should include:

- A form (or forms) which allows the user to enter the following scouting report items:
 - Player Name, Position and Team
 - Scouting Report text
 - Player Overall Future Value from 20-80

- For Position Players: Tool grades (20-80) for Hitting, Power, Running, Fielding and Throwing
- For Pitchers: Pitch grades (20-80) and velocity for each pitch type the pitcher throws
- A way of browsing and viewing saved scouting reports
- The report data should be stored to a SQLite or similar database. Some cloud providers such as Heroku also offer free hosted databases suitable for projects like this.

For information in the 20-80 scouting scale see <https://blogs.fangraphs.com/scouting-explained-the-20-80-scouting-scale/>

For some sample scouting reports see the MLB Pipeline Top Prospects list:
<https://www.mlb.com/prospects/2021>

Project 3 – Batted Ball Data Visualizations

Task: Build a web application to explore player batted ball data

Features your application should include:

- A way of selecting the data to view by player (batter or pitcher)
- An interactive spray chart showing the landing location of the player's batted balls
- Other filters such as date, batted ball trajectory, pitch type, result, etc.
- Any other type of visualizations you think might be interesting – e.g. time series, contour plots, heatmaps, etc.

The source data for this project is contained in the attached file ALWestSampleBattedBalls.zip

Example spray chart applications you may wish to look at for inspiration:

BaseballSavant: <https://baseballsavant.mlb.com/savant-player/vladimir-guerrero-jr-665489?stats=career-r-visuals-mlb>

Fangraphs:

<https://www.fangraphs.com/spraycharts.aspx?playerid=19611&position=3B&type=battedball>

Bill Petti's Tableau Dashboard:

<https://public.tableau.com/profile/billpetti#!/vizhome/SprayChartComparison/Player-YeartoYear>

Resources

A large amount of MLB data is available publicly from the MLB StatsAPI.

The domain is <https://statsapi.mlb.com>

Data	Endpoint
MLB Teams	/api/v1/teams?sportId=1
Team (e.g. for id 141)	/api/v1/teams/141

Roster (e.g. for id 141)	/api/v1/teams/141/roster
Players (e.g. for id 543807)	/api/v1/people/543807
Player Stats	/api/v1/people/543807?hydrate=stats(group=[hitting,pitching,fielding],type=[yearByYear])
Roster stats	/api/v1/teams/141/roster/Active?hydrate=person(stats(type=season))

Here are some additional resources you may want to incorporate into your project:

Team Logos	https://www.mlbstatic.com/team-logos/141.svg
Player head shots (e.g. id 672640). Larger versions can be requested by adding @2x or @4x etc. before the .png extension <i>Please note – these URLs currently return a placeholder image due to ongoing MLB labor negotiations</i>	https://content.mlb.com/images/headshots/current/60x60/672640.png
Ballparks (e.g. id 14)	https://prod-gameday.mlbstatic.com/responsive-gameday-assets/1.2.0/images/fields/14.svg