

Team Project Report

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IT 350

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Project Description

Baseball is an awesome sport. There's a lot of strategy involved and, when you know what's going on, a lot of excitement. Unfortunately, there's a decently-steep learning curve for anyone new to the sport, especially when it comes to statistical terminology. Statistics have become a huge part of the game that can make or break a franchise. We aim to build a fantasy baseball app that not only allows people to compete against their friends to build the best baseball teams possible, but educates users on how baseball is played and why certain statistics are important.

Stories

General Cases

1. Generic Competition
 - a. As the baseball season starts, a group of coworkers wants to have a challenge to see who can create the most successful fantasy baseball team. They download our app/visit our site, create accounts, start a competition, and set to work building their teams and tracking stats throughout the season.
2. Educational Competition
 - a. A man wants to challenge his younger brother to a fantasy match at the start of a season. His brother is reluctant until he discovers our app and agrees to compete since he feels confident he will understand what is happening with the help of our explanatory product.

Specific Cases

1. Tom is playing our game and finds he doesn't understand the importance of a batting average or how it is calculated. He is able to quickly pull up a short help section and learn the reason behind the important statistic. Tom is now more prepared to build a better team.
2. The application will pull live data from a number of sources to keep the database populated with the most up-to-date stats. Push notifications can be sent when a player does well or general fantasy team stats change by a defined amount.

Stakeholder List

Direct

1. Baseball fans - Long time baseball fans will have yet another venue to celebrate their love of the game.
2. Soon-to-be baseball fans - Though they may not know it yet, our app will help regular people become fans of baseball and its many beautiful complexities.
3. Developers - Anyone maintaining the open-source system will have to fix problems as they arise.

Indirect

1. Baseball players - More exposure means more money.
2. Owners - Exposing their players means more revenue for the franchise.
3. Management - More exposure leads to the ability to sign better players.

Management Plan

The vast majority of the tasks involved in our project naturally fall into smaller categories and should only take a couple hours to complete. Example tasks are implementing our database schema, writing code for HTTP call handling, interfacing with the database, etc. Any larger, unforeseen tasks can be broken up into more bite-sized chunks. Our task list will be managed through GitHub's issue system which has built-in commenting and completion tracking.

Overall progress will be tracked through GitHub's milestone system. We create issues for small tasks and assign each issue to a member of the team and then classify those issues inside of a GitHub milestone. We can then visit the page for this milestone and view progress, make comments, and modify tasks involved in each milestone if needed.

Our critical path will be defined and managed by GitHub's project features. After creating issues, we can drag those issues into visual swimlanes representing various stages of task completion. Over time, this view will afford us a great overview of what we have left to accomplish before release.

Source code control is handled via git and synced to GitHub. Integration testing will be handled by CircleCI utilizing the Go programming language's built-in unit testing framework. Code coverage reports and unit testing statistics will be uploaded automatically to Codecov for easy analysis.

If a bug is found during development or after pushing to production, we will create a new issue on GitHub and label it accordingly. By using GitHub's issue system, we can assign the fix to a member of our team, have a discussion surrounding the fix, and log the steps we took to fix it all in a transparent, preserved fashion.

We plan to meet remotely once a week on Thursday mornings to discuss progress and any issues we've been struggling with. As mentioned above, our tracking of tasks and bugs through GitHub issues will largely negate the need for in-person meetings as most of our conversations will happen as time permits on any and all days.

Initial Task List

Jesse Millar

1. Install Go, Git, and become acquainted with GitHub
2. Configure an Ubuntu server for use
3. Set up continuous build pipeline
4. Put together boilerplate code to build off of

Derek Hill

1. Learn the basics of Go
2. Install Go, Git, and become acquainted with GitHub
3. Implement the database schema

Project Tracking

We utilized GitHub's built-in project tracking capabilities to keep track of bugs and feature additions during our project's development. GitHub's terminology for a ticket or todo list item is "issue". GitHub issues can be accessed from the main page of a GitHub repository and can be viewed and contributed to by anyone involved in the open-source community.

Project Retrospective

All things considered, we executed our plan rather well. The biggest hiccup was that after we'd decided on our baseball-oriented project, we realized that the baseball season was over. Because of this oversight, we adjusted our plan to result in a fantasy baseball simulator instead of. Because of time constraints, we were unable to implement unit tests.

Regarding team dynamics, we learned that although the nature of open-source theoretically facilitates remote meetings and development, time does not always allow for longer bouts of productivity. Our more productive times were when we got together in person and sat down for a couple hours to get things done.

Lessons Learned

Time management is a tricky subject. When deciding how long a programming task will take, a good general rule is to multiply that estimate by four. We learned this lesson profoundly during this project. One of our team members was less familiar with Git, the Go programming language, and Docker. A chunk of our team meeting time was utilized teaching him the intricacies of the technologies involved.

Glossary

Codecov

A free service for keeping track of unit test coverage and test reports.

CircleCI

A free continuous integration system that allows for easy building and deploying of our code after each pushed change.

Git

Our version control system for keeping track of code changes. Git is industry standard.

GitHub

GitHub is a highly popular cloud storage solution for hosting and managing Git repositories.

Go

The programming language we used for our project is Go. Go is written by Google and geared heavily towards web applications. Go is a relatively new language having only been released about five years ago. As such, Go best practices are still developing. Go ended up being a good fit for our project because of its ability to handle thousands of HTTP requests a second.

Milestones

A “milestone” is GitHub’s terminology for a section of a project. In addition to GitHub issues, we utilized GitHub’s project management functionalities. In SCRUM terminology, a milestone would represent and be used to track progress through a sprint.

Unit Test

When implemented properly, a unit test is a bit of programming code that exists to test that the functionality of other code is following the specification laid out at the beginning of the project. Unit tests usually run each time a change is made to the code.

Appendix

Git Log

```
commit f9319d033cfe622065f4c0943d8f884a649ba1fe
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Mon Nov 21 20:46:11 2016 -0700
```

Working SQL game generation triggers

```
commit b8c2928d1f936e7c2b45397cc52695793ebb70ce
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Mon Nov 21 19:40:39 2016 -0700
```

Simple UI

```
commit 8068b2b7814030bced2805ead400225fc14ed1ab
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Mon Nov 21 12:45:39 2016 -0700
```

Getting players on a team works

```
commit 80508fbe9b8e90118ef9fe6146ee38a806029486
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Mon Nov 21 12:09:20 2016 -0700
```

Teams work on a low level

```
commit 6835b2419e2494411215adab99a67278f1ee69f7
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Mon Nov 21 11:40:26 2016 -0700
```

Beginning player creation and management

commit 828fde423e4f53c8ee3b0352604f7974e3d2d773
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Nov 21 10:04:39 2016 -0700

Vendoring dependencies

commit 7e4e43eb13680933b3008dde6f6ea026275937ca
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 18 17:02:43 2016 -0700

Working with the library rewrites; still need to vendor

commit 5e646c26e050e615fbf3e17f33d3e4ef802d641c
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 18 16:56:07 2016 -0700

Moving to Echo v3

commit 16cbfe7eef19654fb44775197e47bfb26f5a2f11
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 18 11:06:45 2016 -0700

User management works

commit e0fe95271eb57f58628caf5d6c237863777c0fb8
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 18 09:55:49 2016 -0700

Simple passwords can be added to the database

commit 099eb59456d869d9d12a567d1e4b7cfe9252ddad
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 18 09:48:50 2016 -0700

Added emails and users

commit af14789a34f9b4a56a8a682ab96d7e0fa6570d32
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 18 08:08:46 2016 -0700

Organization

commit ab0f12c4550e8983b97bd50d00e89e8b8a464ae1
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 17 20:41:54 2016 -0700

Deleting works

commit 73da4cc186c6e1ddaf2d5efead9c86ddddd6a98aa
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 17 20:12:40 2016 -0700

League PUT works

commit e2503950a76eec6af0d1708a172ac7ba5fd5fc5ae
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 17 19:44:03 2016 -0700

Working GET and POST on Leagues

commit c3d923773a91151dc61f1e8520d93a7d96cb68c9
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 17 19:05:34 2016 -0700

Working database file

commit 7b56aef12cbeacled4a2e11297e715de999ca3a2
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 17 14:20:23 2016 -0700

Simplifying Circle

commit b7ed0ed4f7e1a3e1e5c39934426a74b951af9bbd
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 17 14:16:05 2016 -0700

Fixing templates and versioning stuff with gvt

commit d6a87a6b7780ef1208f0794ad19d789f803d76a7
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Nov 14 19:54:04 2016 -0700

Fixing foreign key and compile errors

commit 95a5265cc7b0072c32b8895d7234f615797ad6ed
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Nov 14 14:45:28 2016 -0700

Fiddling with new accessors and database schema changes

commit cb5aa0e9ddfa738880e7d3e389160ac39570282a
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Nov 14 14:12:24 2016 -0700

Adding some UI stuff

commit a44aae9868021fe7db979dc1af028972b026b7af
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Nov 14 09:21:56 2016 -0700

Fixing a views issue

commit 1072b2bcca9de0226207e04fafbc838ad846d718
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Nov 14 09:05:48 2016 -0700

Fixing a small YAML issue

commit 5441cdab68949e37c1b9f3473b23feda6857e703
Author: Jesse Millar <jessemillar@Alice.app.byu.edu>
Date: Mon Nov 14 08:56:44 2016 -0700

Trying to fix Circle

commit 575e9b3c4158d6cb9797607cfd12ad1c200cf197
Author: Jesse Millar <jessemillar@Alice.app.byu.edu>
Date: Mon Nov 14 08:55:30 2016 -0700

Trying to fix Circle builds

commit d4803a684cf26b200dae40cbd367da3ff4c119e1
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Sun Nov 13 18:18:41 2016 -0700

Update Algorithm.txt

commit 5838a3eb52dd58b51921d78b15a0ae3c9791b87e
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Sun Nov 13 18:16:51 2016 -0700

Update Algorithm.txt

commit 0253000b864b180389ab6cd45c15bacd72b83027
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Sun Nov 13 18:15:08 2016 -0700

Update Algorithm.txt

commit cc2a94cbbc6ce4ed0f43fa569d5830c0aa297196
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 11 19:16:42 2016 -0700

Adding a minimal frontend scaffold with proper routing

commit 224e24c080e8a9375d8aed661291ee3d3161476e
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Nov 11 17:02:28 2016 -0700

Fixing some SQL syntax errors

commit c1806f735e779e55b6af21087c7fbde0197bfc5a
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 10 21:38:45 2016 -0700

Fixing ports exposed

commit f34f41ce0476c655df0b9fcae2e4fa01303d385e
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 10 20:50:43 2016 -0700

Adding player generation and enabling test deployment

commit b594a8e016d11872659c47a34fcdcfb765b51e254
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 10 20:35:58 2016 -0700

Working hitter generation

commit 31ca3de37030365a7d4c50e560696f9b14257bb6
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Thu Nov 10 20:01:45 2016 -0700

Adding the start of a player generator

commit f3elf44fb574d4812e40b699a9246a406f3dae60
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Wed Nov 9 15:09:33 2016 -0700

Moving the UI screenshot

commit 68fb0eaae9e265b4a08868a9b473e519284321cc
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Wed Nov 9 15:07:57 2016 -0700

Algoriithm for stats

commit 6e02293d2bf9d1363219e551d1a914f906245533
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Wed Nov 9 14:55:50 2016 -0700

Add files via upload

commit ddda6851f42ac34adc2b262e6c9d126fc137b11d
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Wed Nov 9 14:14:39 2016 -0700

Update database.sql

commit 1aa36ed6f5c934aa4a834b676efe4dad5cd7a653
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Wed Nov 9 13:54:53 2016 -0700

Update database.sql

commit c3984ae80baebc2b80027346a6761f2f48c7b114
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Wed Nov 9 11:57:06 2016 -0700

Update database.sql

commit 32a2ed333435706b43874d10f7e53d3cb0ebb8c7
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date: Wed Nov 9 10:11:31 2016 -0700

Update database.sql

commit flde62929d384530747d1df06fcbb5a2a8f84c98
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 15:03:41 2016 -0700

Adding a bit more information to the README

commit 9af88a402752ade699272a8b5331c6c69a78d4e1
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 14:58:58 2016 -0700

Theoretically-working scaffolding

commit 7225296636653146dc47bb56fdd5264e3d6d0f19
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 14:24:25 2016 -0700

Adding some initial accessors

commit bc23168b332eb1b375292ed6a51123c83369c8a0
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 13:47:25 2016 -0700

Cleanup and a start on database schemas

```
commit e0683cbf7e7e8b95e13c03be2d634e4fb2daa24d
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 13:39:24 2016 -0700
```

Finally got the database container working

```
commit f27100c11a6b55f57dd64b17d87aaf540a3ebd3b
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 10:03:38 2016 -0700
```

Simplifying Circle to only push to Docker Hub

```
commit 97f01d9c4e3e143dc3a586c4ad8fc3137b02cefa
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Nov 6 09:30:26 2016 -0700
```

Adding more deploy pipeline files

```
commit b4dd30f22f96ca13f7d27afedab6b07475aef0a7
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sat Nov 5 20:02:32 2016 -0600
```

Trying to get MySQL to import a dump

```
commit 3fc312f79d1cc974982c00b80fa81e84a2852235
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sat Nov 5 19:25:17 2016 -0600
```

Initial Go files

```
commit ad074667aed63e6e681a685a9e63030a6fd4b844
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Mon Oct 24 14:08:23 2016 -0600
```

A few notes on the requirements for the final presentation

```
commit c61530271e2c7d168e948faca9718c426d267371
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Fri Oct 21 22:16:44 2016 -0600
```

Project plan document added

```
commit d3c98b9bd8d5402620491e62c4754f976f147206
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Wed Sep 28 20:09:36 2016 -0600
```

Potentially finishing the write-up

```
commit 0e5dc0ff70f0b7248eb8f77ae01468414ed34f10
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Wed Sep 28 19:46:57 2016 -0600
```

Diagram is done

```
commit 69600fed0a89a4b2425f64f841d8e2da3a5e1a07
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Wed Sep 28 19:37:07 2016 -0600
```

Organizing and adding user information

```
commit 70924f2376e233c19447ed8233a673736d1c1c49
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date:   Wed Sep 28 18:57:13 2016 -0600
```

Add files via upload

```
commit a6b91f979bfbcl1f546d0cccd47aeb6a72ebf23c1
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Wed Sep 28 15:40:19 2016 -0600
```

Adding the start of some documentation

```
commit 783aaf34f61ad390227eb0a54b0ea968c44345eb
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date:   Wed Sep 28 14:59:44 2016 -0600
```

Update formulas.md

```
commit a328d5b2362e4bad239479644c58424fdffe7809
Author: dillhill151 <hamiltonhuskie5@aol.com>
Date:   Mon Sep 26 15:00:34 2016 -0600
```

Add files via upload

```
commit 539991cfa5014b43e0339355e476a29fa64bc9c3
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Sun Sep 25 15:56:57 2016 -0600
```

Adding some formulas

```
commit 6f3edd1456dd164d03bd22c14f0f05bdadb8447a
Author: Jesse Millar <hellojessemillar@gmail.com>
Date:   Sun Sep 25 15:48:11 2016 -0600
```

Initial commit

commit 4218327694f6e35155bb1d830a6b9e63c31213e1
Author: Jesse Millar <hellojessemillar@gmail.com>
Date: Sun Sep 25 14:34:19 2016 -0600

Initial commit

Entity Relation Diagram

