**NCAA Bracket Predictor**

# Sprint 4

**Team Members:**

Kevin Brosam, Nate Lang, John Hattas, Alex Berkhout, Matt Petter

**User Stories:**

Mrs. Hattas wants to enter her son and his friends ESPN bracket challenge group. She wants to create a good bracket with all the statistics she wants easily accessible and in one place. She goes to the website and selects all her favorite stats that she thinks will give her the best bracket. She clicks generate bracket and it gives her a bracket to fill out for the contest. She wins the contest.

David and his friends are creating a group for the ESPN bracket challenge. They pool their money together to create a prize. They all use the bracket predictor website to assist them in making their brackets. David thinks efficiency is the best indicator because it considers many factors. Christopher thinks efficiency is bogus and thinks turnovers is the best indicator.

Sophie is making her bracket and wants to see what indicators worked in previous years to make good brackets. She goes to the high scores page and looks at what were the best combinations of indicators. She then uses these to generate her bracket for the current year.

John wants to use the website easily, from both his desktop and his mobile device. He wants to select multiple indicators and see what percentage of the bracket he got right for previous years. He also wants to see which picks the prediction got right and wrong. He wants to try multiple different ones and see what the overall high score is. When it is all said and done he wants to close out of the website with ease.

Nathan wants to be able to select multiple indicators with weights of his choosing. Nathan wants it to where if he doesn’t specify weights each selected indicator is weighted equally. He wants to see how each indicator is calculated. He also wants to see the formula used to calculate it afterwards. He also wants to see what percentage he got right.

**Task Cards:**

Add % correct to website

* Underneath the bracket the % of games correct is shown
* Also show the points gotten on the ESPN point system

Add right and wrong picks to website

* Color coded team names to indicate if you picked it right or wrong
* Green means you picked right, red wrong

Make weighting feature work

* Add weight sliders to allow for different contributions of indicators

Display weighting formula

* Display formula to the user under bracket. Shows sum of indicators multiplied by their weight percentages. Percentages are scaled from the sliders on the home page.

Create more indicators

* Added seed indicator to simply pick the higher seed. Seed indicator runs by default if no indicators are selected

Normalize data

* Rescale all data from 0 to 1. Invert opponent stats so that bad opponent stats increase teams score. Invert turnover stats because you want low turnovers.

Reset button to easily reset the weights

Test with another group

Update to 2018

* Get data from 2018 and implement it on page.

Track high scores

* Have a high scores page that shows top 5 scores and indicator combos
* Store in text file on AWS server

**Sprint Backlog:**

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Priority [1-10 (1 being lowest)] | Story Points | Completed(Y/N) |
| % added to website | 8 | 2 | Y |
| Right and wrong picks added to website, with colors | 9 | 2 | Y |
| Weighting feature working correctly | 8 | 3 | Y |
| Add 2018 | 10 | 1 | Y |
| Reset button | 5 | 1 | Y |
| More indicators | 5 | 1 | Y |
| Normalize data, make opponent stats negative | 10 | 2 | Y |
| Display weighing formula | 4 | 1 | Y |
| Test with another group | 10 | 2 | Y |
| High score | 3 | 2 | Y |

**Product Backlog:**

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Priority [1-10 (1 being lowest)] | Story Points | Completed(Y/N) |
| Integrate more advanced statistics | 7 | 3 | Y |
| Create picture of the bracket with appropriate teams | 7 | 2 | Y |
| Collect Data | 10 | 2 | Y |
| Have a basic working model | 10 | 2 | Y |
| Potentially display through HTML | 1 | 4 | Y |
| Update for 2018 tournament | 3 | 1 | Y |
| Display data in charts and tables | 5 | 1 | Y |
| Create User Interface | 4 | 4 | Y |
| Host website | 9 | 2 | Y |
| Create working website model | 8 | 3 | Y |
| Merge website and python code to work together effectively | 8 | 4 | Y |
| Create statistical graphs | 1 | 2 | N |
| Develop an algorithm that predicts future tournament results | 1 | 9 | N |
| Statistical method for variable removal | 2 | 3 | N |
| Integrate stat method on website | 2 | 1 | N |
| Add SRS indicator |  |  | N |
| Reach 80% accuracy | 2 | 5 | N |
| Machine learning methods | 2 | 9 | N |

**Burndown Chart:**

The jump in the middle of the chart is when we added the high scores task. We did not originally have this idea at the beginning of the sprint.

## Sprint Retrospective

We wrapped up our project with a very strong 4th sprint. During this sprint we were able to add a lot of features to our website in order to create a more usable website and add features to create a better user experience. By sprint 4, we have learned a lot that has helped us have more efficient sprints. For one, we have learned a ton about programming and software development/design. Only one of our group members had experience with data analysis in python and none of our team had experience with HTML, websites, or using Python for websites. We became pretty good at using these technologies to create our website. Also, of course, we became good at using scrum practices in our sprints. In sprint 4, we were constantly talking about what we were doing on the project in our Daily Scrums. We also were working on it a lot more consistently whenever we had some time. We tried to do testing as we went. If we forgot to document tests, we went through the commit history on GitHub and documented the test we were performing.

In sprint 4 we were not able to do some of the original ideas of creating a machine learning algorithm to predict the tournament. We decided this was outside the scope and we would much rather make a great user experience that works on any device. There are a few things that we would like to improve on if we were to go forward with this project. One is having better website and server hosting. We were only on the free plan which means we had very limited computing power. Computations are slow and if it takes too long it times out. (this happens when you select an excessive number of indicators) Also, we would come up with a better solution for storing high scores. We used text files on an AWS server to store the data. This lead to problems when you tried to read and write to the file rapidly. In the future we would use an actual database to store the high score data that could eliminate our problems.

Overall Sprint 4 was successful and the project was successful. It went a different direction than we had ever imagined from the start, and we are very happy with it. We have a website that is easy to use by anyone and very user friendly.

## Testing another teams project

We tested the Customer Relationship Management website. We created a similar testing excel document as we used for our own tests to show how we tested it. (Testing Another Team.xlsx)