Software Requirements Specification

For

Case Western Reserve University Baseball Alexa Skill

Version 1.1.1

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Date	Reason for Change	Version
9/23/2018	Initial Draft	1.0.0
10/28/2018	Re-work system features based on website availability	1.1.0
11/19/2018	Re-word BO business requirement to have more realistic correct response interpretation percent value	1.1.1

1. Introduction, Background, and Purpose

This SRS describes all aspects of the initial 1.0.0 release of the Case Western Reserve University Baseball Alexa Skill (CWRU Baseball Alexa Skill) including functional requirements, non-functional requirements, business requirements, and user requirements. This application, also known as an Alexa Skill, is to be used in conjunction with an Amazon Alexa enabled device to receive information about the Case Western Reserve University baseball team. Specific functionality can be found later in this document. All requirements stated here, unless specifically stated as otherwise, are to be implemented for the 1.0.0 release.

2. Vision and Scope

This section of the SRS contains the vision we have for the CWRU Baseball Alexa Skill for its 1.0.0 release including the business requirements and proposed problem, our vision of the solution, and the scope and limitation of the application.

2.1. Business Requirements

Currently, the CWRU baseball team contains all of their statistics, rosters, player and coach information on their website. Although this can be accessed by anyone with a computer or smartphone, it would allow the data to be accessed much faster if a special application was implemented. That is our goal with this application, making a faster way that people can access CWRU baseball information by using voice commands. Our goal is to implement this as completely as possible and, at least for all statistic gathering purposes, add ways to access all data on the website. Below are specific business objectives and business risks:

BO - 1: We will consider the project a success once we get correct response 80% of the time, assuming the voice command is interpreted correctly by the device.
BR - 1: We will be reading the data directly from the website which will ensure that the information is up to date but also potentially calls for restructuring the program if the CWRU athletics website goes through a significant format or layout change.

2.2. Vision of Solution

Once our program has been fully implemented, owners of Amazon Alexa devices who wish to stay informed about the CWRU baseball teams will be able to ask their Alexa questions about the team and have the device respond with relevant information. The application will be able to retrieve game scores, and player information and statistics. This will be much a much more efficient way of gathering statistics than navigating the CWRU athletics website.

Our program is dependent on a few assumptions about the environment is running in. Firstly, the Alexa device running the software must be connected to the Internet. Without this connection, the Alexa will not be able to interface with the CWRU Athletics website and return relevant data. Our program is also dependent on the athletics site itself staying relatively the same over time in terms of its formatting. Even a slight change in the format of the website could cause some information to be inaccessible.

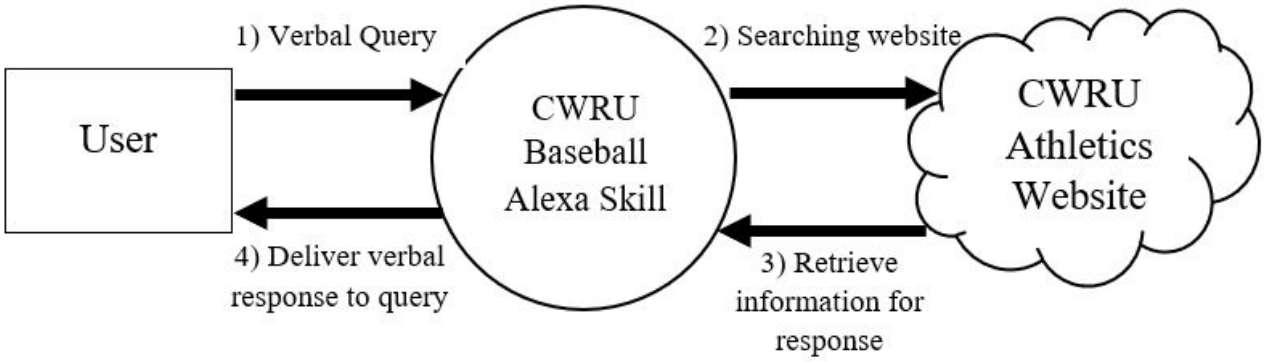

Figure 1 - Basic vision for application layout.

2.3. Scope and Limitations

Our goal for our initial demo is to demonstrate the full functionality of our code except it will take text input instead of voice input from an Alexa. Our goal for the final implementation of the code will be to implement that voice interface on top of our existing code.

One of the limitations of our program is that, due to difficulty recognizing and then correctly interpreting proper names, we will not be able to ask for player names. We will also not be able to ask for all time category leaders over multiple years, as that information is stored on a PDF, not in the website itself.

3. Overall Description

This section of the SRS describes the product, its user classes, operating environment, design constraints, user documentation, and assumptions and dependencies of the CWRU Baseball Alexa Skill.

3.1. Product Perspective

The CWRU Baseball Alexa Skill is an application that allows access to information available about the Case Western Reserve University Baseball team available through the CWRU Athletics website to be retrieved by voice commands from an Alexa enabled device. Although the same functionality is available to all users of the application, some User Groups are expected to use the application in different ways (see “User Classes and Characteristics” below).

3.2. User Classes and Characteristics

All user outline classes below are expected to interact with the application via voice commands on an Alexa enabled device that has the CWRU Baseball Alexa Skill. Users may use the functionality one query at a time per Alexa device, regardless of user class. All functionality of the application is available to all user classes, although some functionality is expected to be used more heavily by certain user classes.

User Class	Description and Characteristics
CWRU Baseball Participant	This Participant class consists of players, coaches, commentators, trainers or other participants of the CWRU baseball team. Users of this class will likely use functionality associated with statistics or team performance, as they have already been to the games to see their scores.
Fans	A Fan is any person other than a Participant of the team that follows the team and its performance. This group includes persons of a great variety of ages, from young children to older fans. Users of this class will likely use functionality associated with the game schedule and scores of games.

UR - 1: Users can get information about a previous or ongoing game(see System Features for specific functionality).

UR - 2: Users can get information on an upcoming game (see System Features for specific functionality).

UR - 3: Users can get information about team statistics (see System Features for specific functionality).

UR - 4: Users can get information about players, such as roster information or player statistics (see System Features for specific functionality).

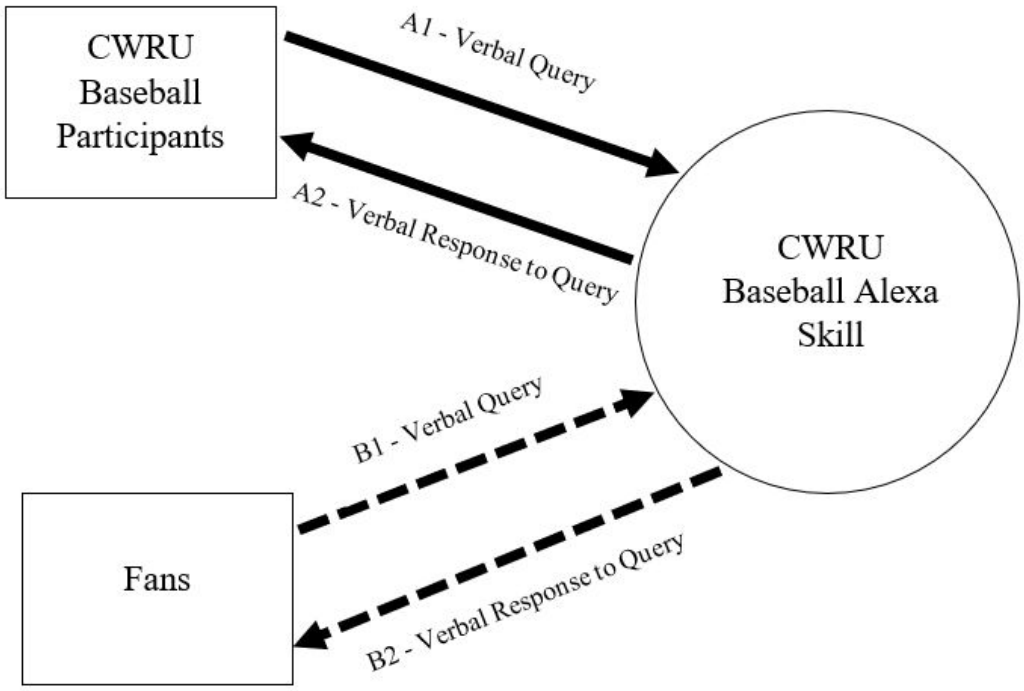

Figure 2 - Context for User Classes interacting with CWRU Baseball Alexa Skill in release 1.0.0

3.3. Operating Environment

OE-1: CWRU Baseball Alexa skill will work with Alexa version 611496620.

OE-2: CWRU Baseball Alexa skill will work with the audio portions of Amazon Echo (1st & 2nd Generation), Amazon Dot (1st & 2nd Generation), Echo Plus, Echo Look, Echo Show, and Echo Spot

OE-3: CWRU Baseball Alexa skill will be stored and run on Amazon Web Services

3.4. Design and Implementation constraints

CO-1: All logic shall be written in Python.

CO-2: External Python libraries may be used.

CO-2: External libraries for Alexa may be used.

3.5. User Documentation

UD-1: Documentation of supported searchable information, statistics, and keywords will be available on the README document on GitHub.

3.6. Assumptions and Dependencies

AS-1: It is assumed that the Alexa user device is connected to the internet.
AS-2: It is assumed that Amazon Web Services are running and available at all times.
AS-3: It is assumed that all information on the CWRU Athletics site is correct.

DE-1: CWRU Baseball Alexa Skill depends on the athletics site not changing its formatting
DE-2: CWRU Baseball Alexa Skill depends on the CWRU athletics site not changing its URL or website domain name
DE-3: CWRU Baseball Alexa Skill depends on the CWRU athletics site remaining up to date with all information to be gathered

4. System Features

This section of the SRS describes features to implement as part of the CWRU Baseball Alexa Skill 1.0.0 release. For readability purposes, the features have been broken into Schedule and Score Functionality, Team Statistics, and Player and Coach Information.

4.1. Schedule and Score Functionality

4.1.1. Description

Users of the application will be able to ask about the schedule and scores of the CWRU baseball team's games. The application will pull the information from the website at the time of the request.

4.1.2. Stimulus / Response Sequences

Stimulus: User requests next upcoming game for the CWRU baseball team
Response: Application returns date and time of next game along with the name of the opposing school

Stimulus: User request current score of a game for CWRU baseball team
Response: Application returns score, status, and opponent of the ongoing game.

Stimulus: User requests the previous game of CWRU baseball team
Response: Application returns the previous game date, opponent, and result.

Stimulus: User request score of specific game of CWRU baseball team by the date the game occured
Response: Application returns the opponent, status, and result of the game, if there is a game on that date. Otherwise returns a message saying that is unable to find the information.

4.2. Team Statistics

4.2.1. Description

Users of the application will be able to request information about statistics that pertain to the entire CWRU baseball team. Searchable statistics include: games, at bats, runs, hits, doubles, triples, home runs, runs batted in, extra base hits, total bases, walks, hit by pitch, strikeouts, sacrifice flies, hit into double play, stolen bases, caught stealing, batting average, on base percentage, slugging percentage, earned run average, shutouts, at bats against, batting average against, home attendance, and home attendance average.

4.2.2. Stimulus / Response sequences

Stimulus: User request team specific stat of the CWRU baseball team for specified year
Response: Application returns requested stat of the CWRU baseball team for the year requested, or the current year if no year is specified.

4.3. Player Information

4.3.1. Description

Users of the application will be able to search for player information for players on the team for a given year. Due to Alexa being unable to accurately interpret names consistently, users will not be able to search for a player by name. Instead users will be able to search by player number. Information available for all players on the roster will be: name, position, bats and throws, height, weight, year, and hometown and high

school. Additional information available for a player if they are a batter (and the website has their information) includes games played, at bats, runs, hits, doubles, triples, homeruns, runs batted in, walks, strikeouts, stolen bases, caught stealing, batting average, on base percentage, and slugging percentage. Additional information about a player if they are a pitcher (and the website has their information) includes appearances, game starts, wins, losses, saves, complete games, innings pitched, hits, runs, earned runs, walks, strikeouts, strikeouts per nine innings, home runs, and earned run average.

4.3.2. Stimulus / Response Sequences

Stimulus: User requests statistic or a piece of information of a player by their player number for a given year

Response: Application returns the statistic or piece of information of the requested player. If no year is specified, the current year's information will be returned.

5. External Interface Requirements

5.1. User Interfaces

UI-1: All interaction with the CWRU Baseball Alexa Skill will occur verbally, both in the user's query and the applications response to the query.

5.2. Hardware Interface

HI-1: The CWRU Baseball Alexa Skill will run on an Alexa enabled device. Devices supported for the 1.0.0 release are Amazon Echo (1st & 2nd Generation), Amazon Dot (1st & 2nd Generation), Echo Plus, Echo Look, Echo Show, and Echo Spot.

5.3. Software Interface

SI-1: Verbal to text transcription of user queries will be handled by pre-existing Alexa functionality.

SI-2: When queried, the CWRU Baseball Alexa Skill will search the CWRU Athletics website for the requested information. If the information cannot be found or does not exist for the requested date or year, it will provide feedback indicating that the data cannot be found.

6. Other Nonfunctional Requirements

This section of the SRS describes requirements of the CWRU Baseball Alexa Skill that are not functional requirements. This includes performance requirements, quality requirements, and safety and security concerns.

6.1. Performance Requirements

PE-1: Application will be able to handle at least 50 simultaneous queries, assuming each query comes from a different supported Alexa device.

6.2. Quality Requirements

Availability-1: Application will be available as long as the CWRU Athletics website is up and running.

Accessibility-1: Application will be accessible from any location as long as the Alexa device is connected to the internet.

6.3. Safety and Security

There are no safety or security concerns for this application in its 1.0.0 release. All information queried is publicly available and since information is only being taken from the website and not modified, there is no safety or security risk.

7. SRS Issues and Resolutions

Issue	Status	Resolution
Grammar and Spelling Errors	Resolved	Corrected Misc. Spelling and grammatical errors
Business objectives and Business requirements were not listed correctly	Resolved	Added separate section detailing objectives and requirements
User requirements section incomplete	Resolved	Added user requirements section after User characteristics section
Difficult to have Alexa interpret player names as part of user query	Resolved	Restrict functionality to not allow player names as input.