

Boardzilla

Software Requirements Specification

Matthew Paulin
paulinm
400187147

Hargun Bedi
bedih
400185463

Dylan Smith
smithd35
001314410

Chenwei Song
songc12
400124879

Tianzheng Mai
mait6
400143042

August 31, 2021

Contents

1	Introduction	4
1.1	Purpose	4
1.2	Scope	4
1.3	Definitions, Acronyms, and Abbreviations	4
1.4	References	4
1.5	Overview	4
2	Overall Description	5
2.1	Product Perspective	5
2.2	Product Functions	5
2.3	User Characteristics	5
2.4	Constraints	5
2.5	Assumptions and Dependencies	5
2.6	Apportioning of Requirements	5
3	Use Case Diagram	6
4	Functional Requirements	6
5	Non-Functional Requirements	7
5.1	Look and Feel Requirements	7
5.1.1	Appearance Requirements	7
5.1.2	Style Requirements	7
5.2	Usability and Humanity Requirements	7
5.2.1	Ease of Use Requirements	7
5.2.2	Personalization and Internationalization Requirements	8
5.2.3	Learning Requirements	8
5.2.4	Understandability and Politeness Requirements	8
5.2.5	Accessibility Requirements	8
5.3	Performance Requirements	8
5.3.1	Speed and Latency Requirements	8
5.3.2	Safety-Critical Requirements	8
5.3.3	Precision or Accuracy Requirements	8
5.3.4	Reliability and Availability Requirements	8
5.3.5	Robustness or Fault-Tolerance Requirements	8
5.3.6	Capacity Requirements	8
5.3.7	Scalability or Extensibility Requirements	9
5.3.8	Longevity Requirements	9
5.4	Operational and Environmental Requirements	9
5.4.1	Expected Physical Environment	9
5.4.2	Requirements for Interfacing with Adjacent Systems	9
5.4.3	Productization Requirements	9
5.4.4	Release Requirements	9
5.5	Maintainability and Support Requirements	9
5.5.1	Maintenance Requirements	9
5.5.2	Supportability Requirements	9
5.5.3	Adaptability Requirements	9
5.6	Security Requirements	9
5.6.1	Access Requirements	9
5.6.2	Integrity Requirements	9
5.6.3	Privacy Requirements	10
5.6.4	Audit Requirements	10
5.6.5	Immunity Requirements	10

5.7	Cultural and Political Requirements	10
5.7.1	Cultural Requirements	10
5.7.2	Political Requirements	10
5.8	Legal Requirements	10
5.8.1	Compliance Requirements	10
5.8.2	Standards Requirements	10
A	Division of Labour	11
A.1	Signatures	11

1 Introduction

1.1 Purpose

This document will elucidate the requirements necessary to create Boardzilla. Some system requirements have been gathered from the project outline and others have been generated to create an acceptable final result. Additionally, this document will contain an explanation of the project and its constraints, the stakeholders of the project, as well as a quantitative measure of the desired finished product. The intended audience for this document include the team members who are developing the product, the Professor, Dr. Khedri, as well as any teaching assistants who will be grading this document.

1.2 Scope

The product being developed is called Boardzilla, an online application that will serve as a *dashboard* for a variety of pertinent information. Each user can have a unique *dashboard* containing their desired *widgets* from the available options. These options include: a weather *widget*, a sticky notes *widget*, a calendar *widget*, a news *widget*, and a *widget* showing live stock prices. This application will serve as a daily briefing to users, presenting live, relevant, and customizable information that is all aggregated on a single page.

1.3 Definitions, Acronyms, and Abbreviations

- **Dashboard:** A user interface or web page that gives a current summary, usually in graphic, easy-to-read form, of key information relating to progress and performance, especially of a business or website. [1]
- **Widget:** An element of a user interface that displays information or provides a specific way for a user to interact with an application. [2]
- **API:** API is the acronym for Application Programming Interface, which is a software intermediary that allows two applications to talk to each other. [3]

1.4 References

- [1] "Definition of dashboard." [Online]. Available: <https://www.dictionary.com/browse/dashboard>
- [2] TechTarget, "What is widget? - definition from whatis.com," Dec 2015. [Online]. Available: <https://whatistechtarget.com/definition/widget>
- [3] "What is an api? (application programming interface)." [Online]. Available: <https://www.mulesoft.com/resources/api/what-is-an-api>
- [4] "United states department of labor." [Online]. Available: https://www.osha.gov/SLTC/etools/computerworkstations/components_monitors.html

1.5 Overview

The remainder of this document will provide an overall description of our product in Section 2, a use case diagram depicting the business events in Section 3, as well as the functional and non-functional requirements in sections 4 and 5 respectively. Lastly, a division of labour is included along with signatures certifying its accuracy.

2 Overall Description

2.1 Product Perspective

Our system will provide users with a large variety of *widgets* to customize their *dashboard*. Similar *dashboard* applications are focused on relaying analytical information such as team or product statistics. Boardzilla's *widgets* provide users with options relevant to broader demographics rather than individual businesses. These *widgets* can then be combined and configured by the user, providing them with a *dashboard* that is unique to them. The standalone versions of the *widgets* such as Google News or The Weather Network provide the same information but are lacking in convenience due to being largely isolated applications. The system will interface with external databases that contain news data, weather data, stock data, and calendar data. In addition, our *dashboard's* ability to be customized does not sacrifice any functionality or usability to the overall application.

2.2 Product Functions

When a user navigates to Boardzilla, they will be presented with a login page. If they are unregistered, they will have to first register before being able to access their personalized *dashboard*. Once logged in, a user will be able to see a welcome page greeting the user personally with a friendly message. The app will also display the user's *widgets* in their chosen configuration. By dragging the *widgets* around the screen, the positioning and layering can be adjusted to suit the user's needs. Each *widget* will have an option to be minimized or deleted and there will also be a menu to add additional *widgets*. The available *widgets* will include weather, stock, calendar, news and sticky notes. When adding new *widgets*, the user must select specific *widget* options if necessary. All of the user's *dashboard* and individual *widget* customization will be saved in the cloud and accessible through their account on multiple machines.

2.3 User Characteristics

Boardzilla will be designed to appeal to everyone in the English speaking world, the only requisite knowledge being how to use a computer and web browser. To that end, intended users of Boardzilla will not be required to have any other technical background or education besides an intermediate understanding of the English language. Additionally, prior experience with our application will not be required because all relevant information will be provided to the user upon registration.

2.4 Constraints

- Timing Constraint: The entire project must be completed and submitted by April 9, 2021.

2.5 Assumptions and Dependencies

- The system will be able to access the relevant data externally for use with the *widgets*.

2.6 Apportioning of Requirements

In future versions we will:

- Enable the user to choose from a wider variety of *widgets*.
- Add multiple language and region support for the text within the application.
- Increase the level of accessibility for physically or mentally impaired users.
- Allow users to see previously retrieved information in an offline version of the application.
- Allow users to save and access multiple layout configurations.

3 Use Case Diagram

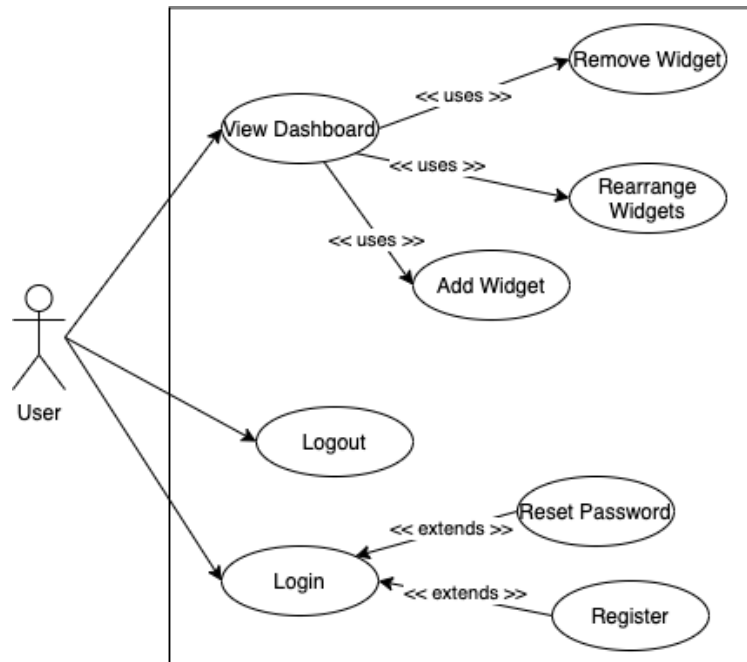


Figure 1: Use Case Diagram

4 Functional Requirements

VP1 User

BE1 User wants to view their *dashboard*

- i. The system will check if the user is logged in to their account with the system.
- ii. If the user is not logged in, the system will redirect the user to the system registration page.
- iii. The system will fetch the user's *widgets* from the internal database.
- iv. The system will display the user's *widgets* in accordance with the user's chosen positioning.
- v. The system will display the add and remove *widget* options.
- vi. The system will update the *widgets* with current information.
- vii. The users will be able to access more information by hovering over the associated help icons.

BE2 User registers for an account

- i. The system will provide the user with a sign up form.
- ii. The system will verify the validity of the information and will create an account in the database if the information is valid.
- iii. The system will display an error message upon an invalid registration.
- iv. The system will redirect the user to a newly created, empty *dashboard* and will display system instructions.

BE3 User attempts to login to the system

- i. The system will display a login form.
- ii. The system will verify that correct login information was provided.

- iii. The system will redirect the user to their own *dashboard*.
- iv. The system will display an error message after an invalid login attempt.

BE4 User wants to add a *widget* to their *dashboard*

- i. The system will provide the user with a list of possible *widgets*.
- ii. The system will allow the user to input a *widget* selection and will redirect them to the setup page for that *widget*.
- iii. After *widget* configuration, the system will prompt the user to place the *widget* on their *dashboard*.
- iv. The system will display an error message indicating any incorrect *widget* parameters.
- v. The system will fetch the *widget* data.
- vi. The *widget* and its parameters will be added to the system's database.

BE5 User wants to remove a *widget* from their *dashboard*

- i. The system will provide the user with a list of existing *widgets* to delete.
- ii. The system will remove the selected *widget* from the database.
- iii. The system will remove the selected *widget* from the *dashboard*

BE6 User wants to log out of the application

- i. The system will invalidate the user's session.
- ii. The user will be redirected to the login page.

BE7 User wants to reset their password

- i. The system will send a password reset email containing a temporary password.
- ii. The user will be redirected to the change password page where they can modify their password.

BE8 User wants to modify their *dashboard* layout

- i. The positioning of the *widgets* will be updated in the system's database.
- ii. The display will reflect the updated *widget* positioning.

5 Non-Functional Requirements

5.1 Look and Feel Requirements

5.1.1 Appearance Requirements

LF1. The system shall use modern styling whenever possible.

LF2. The system shall be visually appealing to 77% of users.

5.1.2 Style Requirements

LF1. The text size and font must be legible at a normal computer viewing distance of 20-40 inches [4].

LF2. The fonts, colours, and icons must remain consistent throughout the system.

5.2 Usability and Humanity Requirements

5.2.1 Ease of Use Requirements

UH1. Any buttons must be large enough to be located and pressed within 5 seconds.

UH2. The users must be presented with general instructions when logging in for the first time.

UH3. The language should be understandable to anyone with a fifth grade level of reading comprehension.

5.2.2 Personalization and Internationalization Requirements

- UH1. Boardzilla must allow users to adjust the positioning and layering of the *widgets* on their personal *dashboard*.
- UH2. *Widgets* must accept valid parameters from users.

5.2.3 Learning Requirements

- UH1. The user interface must be understood by a user within 10 minutes of system use.

5.2.4 Understandability and Politeness Requirements

- UH1. The symbols must convey the correct meaning to users 95% of the time.
- UH2. The language in the app must be grammatically correct 99% of the time.

5.2.5 Accessibility Requirements

- UH1. Any adjacent colours used within the user interface must appear distinct to users afflicted with colour blindness.

5.3 Performance Requirements

5.3.1 Speed and Latency Requirements

- PR1. The system shall respond to network requests with the necessary information in less than 3 seconds 99% of the time.
- PR2. A request to fetch user data from the external *APIs* must be sent in under 10 seconds 99% of the time.

5.3.2 Safety-Critical Requirements

- PR1. *N/A*

5.3.3 Precision or Accuracy Requirements

- PR1. The system must show correct *widget* information 99% of the time.
- PR2. The database must store current information 99.9% of the time.

5.3.4 Reliability and Availability Requirements

- PR1. Boardzilla shall be available for use 99.99% of the time.
- PR2. The system shall require internet access to function.

5.3.5 Robustness or Fault-Tolerance Requirements

- PR1. Boardzilla must display data consistently across supported devices.
- PR2. The system shall remain visible, but with stale data in the case of internet loss.
- PR3. The system shall notify active users in the case of a system failure, or loss of connectivity to the system.

5.3.6 Capacity Requirements

- PR1. The system shall be able to handle up to 100 users concurrently.

5.3.7 Scalability or Extensibility Requirements

- PR1. The system shall be designed such that additional *widgets* can be added in future versions without modifying more than 10% of existing software.

5.3.8 Longevity Requirements

- PR1. The system shall remain online for at least 2 years after software delivery.

5.4 Operational and Environmental Requirements

5.4.1 Expected Physical Environment

- OE1. Boardzilla shall be operable in any physical environment that mobile phones or desktop computers can be operated in.

5.4.2 Requirements for Interfacing with Adjacent Systems

- OE1. The application shall interface with *APIs* that provide *widget* data at no cost.

5.4.3 Productization Requirements

- OE1. *N/A*

5.4.4 Release Requirements

- OE1. The system must have 90% of software issues patched before release.

5.5 Maintainability and Support Requirements

5.5.1 Maintenance Requirements

- MS1. System updates shall not keep the system down for longer than 10 minutes.
- MS2. The system shall have an uptime of 99.99%.

5.5.2 Supportability Requirements

- MS1. The system's instructions shall explain 99% of scenarios.

5.5.3 Adaptability Requirements

- MS1. *N/A*

5.6 Security Requirements

5.6.1 Access Requirements

- SR1. The system shall only allow access if a valid username and password are entered.
- SR2. The system shall only provide a user with access to their *dashboard*.

5.6.2 Integrity Requirements

- SR1. The system must sanitize all data that is collected from users.
- SR2. The system must employ rate limiting to cap the addition of *widgets* to one *widget* per twenty seconds per user.
- SR3. The user must not be able to manipulate other user's data.

5.6.3 Privacy Requirements

- SR1. The system must not release user information to any third party.
- SR2. The system shall not store unencrypted user passwords.
- SR3. The system shall not collect any unnecessary user data.

5.6.4 Audit Requirements

- SR1. After a security audit, at least 90% of the changes should be made within a month.

5.6.5 Immunity Requirements

- SR1. Software security patches must be installed within a week of their release.

5.7 Cultural and Political Requirements

5.7.1 Cultural Requirements

- CP1. The iconography and language contained within Boardzilla will be inoffensive to 99.9% of users.

5.7.2 Political Requirements

- CP1. *N/A*

5.8 Legal Requirements

5.8.1 Compliance Requirements

- LR1. The system must obey local laws and regulations.
- LR2. Boardzilla must follow the terms of service of all external *APIs*.

5.8.2 Standards Requirements

- LR1. *N/A*

A Division of Labour

This document was created through a collaborative effort by the whole group, exchanging ideas and filling in sections together. Meetings were held regularly to iterate on this document until an acceptable final version was achieved. By signing this document, the group members certify that this division of labor is fair and accurate.

A.1 Signatures

Matthew Paulin

Date

Hargun Bedi

Date

Dylan Smith

Date

Chenwei Song

Date

Tianzheng Mai

Date