

Software Requirements Specification for Software Engineering: subtitle describing software

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Revision History

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

1 Project Drivers

1.1 Purpose of the Project

1.1.1 User Business

Insert your content here.

1.1.2 Goals of the Project

Insert your content here.

1.2 Stakeholders

1.2.1 Client

The client for this project is the supervisor, Luke Schuurman. He is a member of the MES and has first hand experience planning and hosting events with the MES. As the supervisor he will play a crucial role by ensuring the project aligns with objective of the MES and integrate the platform seamlessly with existing systems. He will also provide us with feedback and guidance throughout the project and will help define the project requirements in this document.

1.2.2 Customer

Refer to client

1.2.3 Other Stakeholders

Irrelevant

1.2.4 Hands-On Users of the Project

MES Executives and Council Members: They will be utilizing this system to create and manage events, configure forms and surveys, monitor event data and generate data analytics reports. They can be characterized as primarily undergraduate students who value their time greatly. They aim to reduce the time taken to do administrative tasks as well as provide a better experience during MES events. Their experience with systems like this

can range from Journeyman - Master as they can be experienced in event planning and student engagement. There may be a slight learning curve to utilizing the new technology but these users have experience performing these functions.

McMaster Engineering Students: They will be utilizing this app to register for events, purchase tickets, sign waivers, check in at venues, and complete feedback surveys. They want to enjoy their university experience and connect with other students, They are also very busy and value their time greatly so are looking for an intuitive and straightforward user experience. Their general experience with systems like this is Journeyman as they may have used similar systems for other use cases.

Other Students and Guest Event Attendees: This group includes non-engineering students, alumni, and invited guests who participate in large-scale MES events such as the Fireball Formal and Graduation Formal, which extend beyond the core engineering community. It could also include students and guests from other universities as well as industry which attend the engineering conferences that the MES helps host. They are generally looking for an easy and seamless experience registering and attending these events. Their general experience with systems like this is Journeyman as they may have used similar systems for other use cases.

1.2.5 Personas

1. **Matthew Cruise (Engineering Student):** Matthew is a 20-year-old second-year Mechanical Engineering student at McMaster University. He lives in a shared house near campus with two close friends. He enjoys attending MES events like pub nights and the Fireball Formal as a way to balance his heavy academic workload with some enjoyment and entertainment. He usually hears about events through word-of-mouth or social media and would prefer an easy and effortless way to find and register for events. Matthew is generally tech savvy and is comfortable using online platforms but doesn't want to be bothered by too many notifications and forms. He has many ideas on how he can generally improve his university experience but doesn't believe he has an outlet to convey them. For Matthew his priority is convenience as he wants to enjoy himself but doesn't want to spend too much time or

effort doing so.

2. **Adam Clooney (MES Executive):** Adam Clooney is a 22-year-old final-year Civil Engineering student who currently serves as VP Social on the MES. He is responsible for coordinating large-scale events like Fireball Formal, working closely with other council members to handle logistics, advertising, and student engagement. Adam is outgoing and enjoys bringing people together, but often feels the strain of balancing his role with academic responsibilities. He is proficient with common digital tools such as Google Drive, spreadsheets, and design platforms for promotions, but he's not highly technical. Adam appreciates structure and tools that keep things organized because he dislikes wasting time fixing errors or repeating work. He is motivated by the sense of accomplishment that comes from hosting a successful event and wants tools that help him stay on top of details.
3. **Margot Watson (McMaster Student):** Margot Watson is a 21-year-old undergraduate student in Political Science at McMaster University. Although she is not part of the engineering faculty, she often attends large MES-hosted events such as the Fireball Formal and other socials because many of her friends are in engineering. Margot lives in an off-campus apartment with two roommates and enjoys being involved in student life across faculties. She has a relaxed attitude toward technology since she uses her phone daily for social media and messaging but she prefers things to be straightforward and intuitive. She is cautious with her money, balancing tuition and living expenses, but she's willing to spend on experiences with friends. She is motivated by spending time with her friends and having good experiences to have a fulfilling student life.

1.2.6 Priorities Assigned to Users

Key Users: Luke Schuurman, MES Council Members and Executives, McMaster Engineering Students.

Secondary Users: Other Students and Guest Event Attendees.

1.2.7 User Participation

Our requirements will primarily be derived through meetings with our supervisor Luke Schuurman. If we have the need to clarify or elicit more requirements we will look to engage other MES members either through our supervisor or directly.

1.2.8 Maintenance Users and Service Technicians

The future maintenance and servicing of this project are beyond the scope of this capstone.

2 Project Constraints

2.1 Mandated Constraints

2.1.1 Solution Constraints

Insert your content here.

2.1.2 Implementation Environment of the Current System

Insert your content here.

2.1.3 Partner or Collaborative Applications

Insert your content here.

2.1.4 Off-the-Shelf Software

Insert your content here.

2.1.5 Anticipated Workplace Environment

Insert your content here.

2.1.6 Schedule Constraints

Insert your content here.

2.1.7 Budget Constraints

Insert your content here.

2.1.8 Enterprise Constraints

Insert your content here.

2.2 Naming Conventions and Terminology

- MES: McMaster Engineering Society

2.2.1 Glossary of All Terms, Including Acronyms, Used by Stakeholders involved in the Project

Insert your content here.

2.3 Relevant Facts And Assumptions

2.3.1 Relevant Facts

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2.3.2 Business Rules

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2.3.3 Assumptions

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3 Functional Requirements

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3.1.1 The Current Situation

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3.4 Functional Requirements

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4.4.1 Expected Physical Environment

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4.4.3 Requirements for Interfacing with Adjacent Systems

Insert your content here.

4.4.4 Productization Requirements

Insert your content here.

4.4.5 Release Requirements

Insert your content here.

4.5 Maintainability and Support Requirements

4.5.1 Maintenance Requirements

- MSR1. • Rationale:
- Fit Criterion:

4.5.2 Supportability Requirements

Insert your content here.

4.5.3 Adaptability Requirements

Insert your content here.

4.6 Security Requirements

4.6.1 Access Requirements

Insert your content here.

4.6.2 Integrity Requirements

Insert your content here.

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4.7 Cultural Requirements

4.7.1 Cultural Requirements

Insert your content here.

4.8 Compliance Requirements

4.8.1 Legal Requirements

Insert your content here.

4.8.2 Standards Compliance Requirements

Insert your content here.

5 Project Issues

5.1 Open Issues

Insert your content here.

5.2 Off-the-Shelf Solutions

5.2.1 Ready-Made Products

There are some products that exist on the market which solve certain components of this product but no product exists that combines these components into one. For event management there are various tools such as EventBrite and Stubhub which can allow for the selling of tickets for events. The problem with these products is that they don't integrate well with current MES Systems and don't provide all the features as required such as collecting waivers and ensuring McMaster students attend university specific events. For general data collection Google Forms is the most used tool and it allows for the creation of complex forms and stores data in spreadsheets. For further data analysis it requires effort on the part of the form creator to actually go and analyze the data to gain actual insights. Also the forms can become hard to handle as they become complex and can become confusing for respondents. As mentioned before there is no tool that has a combination of the two components.

5.2.2 Reusable Components

There are various components that we can use to help develop our application:

- **Next.JS:** Provide us with a framework for developing web apps in **React** and provides built in routing behaviour. It also handles many built in libraries and packages that we can use for front-end styling such as **tailwind-css** and **shadcn/ui**. We can also integrate it with other libraries for authentication and for database management
- **SurveyJS:** This is a potential tool we can use to develop the form builder as it provides us with some pre-built components we can use to develop and customize our own forms.
- **Recharts:** This could be potential charting tool we can use to develop our admin dashboard. Though there are other charting tools the benefit of Recharts is that it provides customization on top of the pre built charts.
- **Drizzle:** We can use Drizzle as an ORM to map from our database to our web-app. Drizzle is useful since it is lightweight and is code first. Drizzle's simplicity allows for faster development and is perfect for our use case.

These components will allow us to develop our application faster and more efficiently as many of these products are already optimized. All the above products are free to use so do not incur any extra costs or require the handling of licenses.

5.2.3 Products That Can Be Copied

There don't seem to be any products that can be copied which contain all the required components within a single product. Moreover the MES wants a product that doesn't require an external license and wants to be fully built in house so they have control over future development and usage.

5.3 New Problems

5.3.1 Effects on the Current Environment

Insert your content here.

5.3.2 Effects on the Installed Systems

Insert your content here.

5.3.3 Potential User Problems

Insert your content here.

5.3.4 Limitations in the Anticipated Implementation Environment That May Inhibit the New Product

Insert your content here.

5.3.5 Follow-Up Problems

Insert your content here.

5.4 Tasks

5.4.1 Project Planning

Insert your content here.

5.4.2 Planning of the Development Phases

Insert your content here.

5.5 Migration to the New Product

5.5.1 Requirements for Migration to the New Product

Insert your content here.

5.5.2 Data That Has to be Modified or Translated for the New System

Insert your content here.

5.6 Costs

We don't expect any costs to arise during the development of the project. We will be using free tools and libraries for development and for hosting we will look to host databases and the back-end locally. In production the hosting will be done by the MES so it is out of the scope of this capstone.

5.7 User Documentation and Training

5.7.1 User Documentation Requirements

Insert your content here.

5.7.2 Training Requirements

Insert your content here.

5.8 Waiting Room

Insert your content here.

5.9 Ideas for Solution

Insert your content here.

Appendix — Reflection

The purpose of reflection questions is to give you a chance to assess your own learning and that of your group as a whole, and to find ways to improve in the future. Reflection is an important part of the learning process. Reflection is also an essential component of a successful software development process.

Reflections are most interesting and useful when they're honest, even if the stories they tell are imperfect. You will be marked based on your depth of thought and analysis, and not based on the content of the reflections themselves. Thus, for full marks we encourage you to answer openly and honestly and to avoid simply writing "what you think the evaluator wants to hear."

Please answer the following questions. Some questions can be answered on the team level, but where appropriate, each team member should write their own response:

1. What went well while writing this deliverable?
2. What pain points did you experience during this deliverable, and how did you resolve them?
3. How many of your requirements were inspired by speaking to your client(s) or their proxies (e.g. your peers, stakeholders, potential users)?
4. Which of the courses you have taken, or are currently taking, will help your team to be successful with your capstone project.
5. What knowledge and skills will the team collectively need to acquire to successfully complete this capstone project? Examples of possible knowledge to acquire include domain specific knowledge from the domain of your application, or software engineering knowledge, mechatronics knowledge or computer science knowledge. Skills may be related to technology, or writing, or presentation, or team management, etc. You should look to identify at least one item for each team member.
6. For each of the knowledge areas and skills identified in the previous question, what are at least two approaches to acquiring the knowledge or mastering the skill? Of the identified approaches, which will each team member pursue, and why did they make this choice?