**COMP 3059 – Capstone Project I**

**Software Requirements Analysis and Design Assignment**

This assignment is an overview to gather the software needs with requirements analysis and help to proceed with the design.

The requirements analysis helps to break down functional and non-functional requirements to a basic design view to provide a clear system development process framework. It involves various entities, including business, stakeholders and technology requirements.

The design is the activity following requirements specification and before programming. Software design usually involves problem solving and planning a software solution.

To work on this assignment you could use the references and a sample template given below. The sample template can be customised to suit the nature of your project.

Reference Readings/Example:

<http://www.uacg.bg/filebank/acadstaff/userfiles/publ_bg_397_SDP_activities_and_steps.pdf>

[www.cse.msu.edu/~chengb/RE-491/Papers/SRSExample-webapp.doc](http://www.cse.msu.edu/~chengb/RE-491/Papers/SRSExample-webapp.doc)

Source for this template:

[www.tricity.wsu.edu/~mckinnon/cpts322/cpts322-srs-v1.doc](http://www.tricity.wsu.edu/~mckinnon/cpts322/cpts322-srs-v1.doc)

# 1.0 Introduction

The software requirements analysis and design for the "Cups & Cookies" online application, which aims to offer a complete home café experience, are described in this paper. This project combines a passion for coffee with easily available digital tools to meet the rising demand from coffee lovers to produce café-quality drinks and pastries in their own environment. A recipe collection, user authentication, community features, and e-commerce for café tools are just a few of the capabilities that the system will offer.

## Purpose

This document outlines the high-level software requirements for the Cups & Cookies web application, focusing on the capabilities and intended outcomes rather than implementation specifics. It acts as a reference for project team members, developers, and stakeholders to comprehend the key features and goals of the system. This document lays the groundwork for an organised design and development process by outlining the system's requirements, guaranteeing alignment with project objectives and user demands.

The Cups & Cookies website seeks to provide users with:  
1. access to a wide variety of pastry and coffee recipes.  
2. Individualised user profiles with personalisation choices.  
3. Features that encourage community involvement, such reviews and comments on recipes.  
4. Integration of e-commerce to buy café equipment.

## Scope

The Cups & Cookies web application's scope includes all of the necessary features and functionality to give users a pleasant and engaging home café experience. Coffee lovers will be able to purchase café supplies, interact with other users, and obtain recipes through the system's user-friendly, adaptable application. In order to ensure focused development and fit with the project objectives, this section specifies both in-scope and out-of-scope aspects.

Scope:  
  
**1. Recipe Library:** The system will include an extensive collection of pastry and coffee recipes, along with brewing instructions and lessons on how to make desserts. Users have the ability to peruse, look up, and bookmark their preferred recipes.  
  
**2. User Personalisation and Authentication**: Users will have the ability to create an account, log in, and customise their profiles. This includes getting personalised recommendations, keeping track of recipe history, and preserving preferences.  
  
**3. Community Engagement:** A community component will enable users to communicate with other coffee lovers, evaluate and review recipes, and exchange advice. This encourages people to share ideas in a collaborative setting.  
  
**4. E-commerce Integration:** To improve their home brewing experience, customers will be able to buy suggested café equipment (such pitchers and coffee grinders) through a restricted e-commerce function.  
  
5. The platform will be completely responsive thanks to responsive web design, guaranteeing an optimized user experience across desktops, tablets, and mobile devices.

Out of Scope:

**1. Supply Chain and Inventory Management:** Backend logistics for e-commerce supply chain monitoring and inventory management will not be included in the system.  
  
**2. Third-Party Payment Integration**: This category does not include sophisticated payment processing that goes beyond the fundamentals of e-commerce.  
  
**3. Native Mobile Application**: Creating stand-alone iOS or Android mobile applications is not part of the project scope; instead, it is centred on creating a responsive online application.  
  
**4. Comprehensive Customer Support**: The system will not offer live chat or customer support services, but it will include basic help tools like FAQs.  
  
**5. Advanced Analytics:** In order to improve the user experience, data gathering will be restricted to fundamental user activities. Tools for business intelligence or advanced analytics are not within the purview of this project phase.

# System Overview

## Project Perspective

The **Cups & Cookies** platform is a **new, self-contained system** specifically developed to serve as a digital solution for coffee enthusiasts seeking a personalized and convenient home café experience. Unlike other applications focused solely on recipes or e-commerce, Cups & Cookies uniquely combines instructional content, community interaction, and limited e-commerce functionalities into one cohesive platform.

This project is not part of any existing system family, nor does it replace any other systems. Instead, it introduces a novel approach to home café culture by addressing the modern user’s needs—allowing them to explore diverse recipes, interact with like-minded individuals, and acquire essential tools from a single platform.

The origin of this project lies in the rising trend of creating café experiences at home, driven by factors like cost, convenience, and health considerations. The **Cups & Cookies** platform, developed as a student-led initiative, is positioned to fill this gap in the market by offering an all-in-one solution tailored to coffee and pastry enthusiasts, empowering them to recreate café experiences from the comfort of their own kitchens.

## System Context

The **Cups & Cookies** platform is developed to meet the needs of coffee enthusiasts and home bakers by offering a centralized space for recipes, community engagement, and tool purchasing. Strategically, the platform addresses the rising demand for an at-home café experience as users seek alternatives to traditional cafés due to costs, limited menu options, and health considerations. This system supports users in replicating a café-quality environment at home, catering to those looking for affordable, high-quality coffee and pastry experiences in a controlled and convenient space. Additionally, the platform encourages user interaction, fostering a community for coffee and baking enthusiasts.

## General Constraints

The **Cups & Cookies** system is subject to several constraints that will affect its specification, design, implementation, and testing:

* **Budget Limitations**: As a student-led project, the development resources, including software tools and cloud services, may be limited. This constraint affects the choice of technologies and scale of functionalities.
* **Time Constraints**: The project is planned for completion by a set deadline, impacting the scope and depth of features. Only essential features can be prioritized for implementation within the given timeframe.
* **Performance Requirements**: The system must be optimized for smooth, responsive performance across devices, particularly for browsing recipes, community interaction, and e-commerce functionality.
* **Data Privacy and Security**: User authentication and data handling must comply with privacy regulations, ensuring user data protection, especially for any transactions.
* **Cross-Device Compatibility**: The application must be designed as a responsive web app, not as a native mobile app, limiting some device-specific features but ensuring accessibility on desktops, tablets, and smartphones.

## Assumptions and Dependencies

**Assumptions:**

1. **User Interest**: It is assumed that there is a significant interest among coffee enthusiasts and home bakers for a platform that offers comprehensive recipes, community interaction, and tool purchasing.
2. **Access to Required Technologies**: The project assumes continued access to necessary development tools (React, Node.js, Java, MongoDB) and platforms such as GitHub and Jenkins for version control and CI/CD.
3. **Stable Internet Connection**: Users are assumed to have stable internet access, as the platform’s functionality depends on continuous connectivity for features like browsing recipes and community interactions.
4. **User Knowledge of Basic Internet Browsing**: The system assumes that users are familiar with basic internet navigation and online shopping processes.

**Dependencies:**

1. **Third-Party APIs and Libraries**: The system may rely on third-party APIs or libraries for functionalities such as e-commerce transactions or UI components. Disruptions in these services could impact certain features.
2. **Database Management**: The success of the system relies on MongoDB for data storage. Any issues with database management, scalability, or maintenance could affect user data accessibility and platform stability.
3. **Availability of Development and Testing Resources**: The project’s success depends on having access to adequate resources, including time and skilled personnel for development and testing.
4. **Hosting and Deployment Platform**: The application will need a reliable hosting service for deployment. Availability, performance, and cost of hosting services could impact the project’s success and user experience.

## 3.0 Functional Requirements

This section describes specific features of the software project. If desired, some requirements may be specified in the use-case format and listed in the Use Cases Section.

### 3.1 <Functional Requirement or Feature #1>

* Introduction
* Inputs
* Processing
* Outputs

...

## 3.2 Use Cases

### 3.2.1 Use Case #1 ...

### 3.2.2 Use Case #2 ...

**3.3 Data Modelling and Analysis**

* Normalized Data Model Diagram
* Activity Diagrams
* Sequence Diagrams
* UML Class Diagram

**3.4 Process Modelling**

* Data Flow Diagram

## 4.0 Non-Functional Requirements

The non-functional requirements for a system are typically constraints on the functional requirements – that is, not what the system does, but how it does it (e.g. how quickly, how efficiently, how easily from the user’s perspective, etc.).

### Non-functional requirements may exist for any of the following attributes – Performance, Reliability, Availability, Security, Maintainability, Portability.

Often these requirements must be achieved at a system-wide level rather than at a unit level. State the requirements in the following sections in measurable terms (e.g., 95% of transaction shall be processed in less than a second, system downtime may not exceed 1 minute per day, etc).

## 5.0 Logical Database Requirements

Will a database be used? If so, what logical requirements exist for data formats, storage capabilities, data retention, data integrity, etc?

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## 6.0 Other Requirements

Additional requirements, if any.

**7.0 Approval**

The signatures below indicate their approval of the contents of this document.

|  |  |  |  |
| --- | --- | --- | --- |
| Project Role | Name | Signature | Date |
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