**Introduction:**

A software requirements specification (SRS) is a description of a software system to be developed. It lays out functional and non-functional requirements, and may include a set of useful cases that describe user interactions that the software must provide. [1] The software requirements specification document enlists enough and necessary requirements that are required for the project development. [2] The following subsections of the Software Requirements Specifications (SRS) document should provide an overview of the entire Hall messing system project.

**Stakeholders:**

According to **Karl Wieger**s’ Software Requirements, “stakeholder: A person, group, or organization that is actively involved in a project, is affected by its outcome, or can influence its outcome.” [3] **Ian Sommerville** said, “The term *stakeholder* is used to refer to any person or group who will be affected by the system, directly or indirectly. Stakeholders include end-users who interact with the system and everyone else in an organization that may be affected by its installation.” [4] Again, **Roger S. Pressman** defines five groups or stakeholders: senior managers who define business issues, project/technical managers who organize and control the practitioners, the practitioners who engineer the system, customers who specify the requirements for the software, and end-users who will interact with the delivered system. [5]   
The stakeholders of the Osmany Hall Messing System are given below:

* **Hall Students:** Hall students are the most important stakeholders of this system. They are the main end-user of this system because they can view their bill status, sign their meal, view their payment history etc.
* **Hall Staff:** Hall staff coordinate the insertion of information in the system and also have the power to activate or deactivate a student’s meal.
* **Hall Manager:** Hall manager is responsible for all the meal management and accounting system of the hall.
* **Hall Authority:** Hall provost and assistant provost keeps an eye on the hall system to make sure that it is running smoothly without any hindrances.
* **System Manager**: Database administrator is responsible for the hall messing system database and shall be able to solve any database related problems. IT officers and server room officers are responsible for installing and maintaining the system.
* **External Stakeholders:** External stakeholders are individuals, groups, and entities from outside that are affected by the consequences and outcomes of an organization's decisions. External stakeholders can include shareholders, or stockholders, as well as governmental bodies, communities, financiers and customers. In our system.  
  **⇒ Trust Bank:** The bank (Trust Bank) that conducts the money transactions of the hall will be connected to the system externally as preliminarily, they keep the account of the transactions.  
  **⇒ Supplier:** Suppliers who supplies grocery to the hall are also part of external stakeholders because their supply information will also be stored in the system.

**Types of Requirements:**

The software requirements are description of features and functionalities of the target system, services that a customer requires from a system and the constraints under which it operates. The below diagram depicts the various types of requirements that are captured during SRS.

The basic requirements types for our software system are described below:

**Our Basic Requirements:**

1. Online meal sign for students
2. Not allowing to sign other student’s meal
3. Providing sufficient time to hall stuff to entry necessary information
4. Providing secured access of the hall accounting system only to manager and authority
5. Facility to see both hall and mess bill online
6. Facility to see urgent hall notices online

**User & System Requirements:**

User requirements talk about the problem domain, the world of the user and they depends upon how user can use the software. It is a list of features an application must/should have. For our hall messing system, the possible users are the students, hall staffs, hall manager and hall authority (provost, assistant provost).

On the other hand, System requirements talk about the solution domain, the world of the software logic. They represent all of the requirements at the *system level* that describe the functions which the system as a whole should fulfill to satisfy the stakeholder needs and requirements and is expressed in an appropriate combination of textual statements, views, and non-functional requirements. Our user and system requirements are given below:

**Students:**

**For User:**

1. Students should be able to sign on/off meal anywhere anytime.

**For System:**

1.1 Student can sign on/off their meal for the next day.

1.2 They have to sign it before 2230 hours because after that time the hall staffs has to order meal.

1.3 Students can sign it from anywhere through website but he needs to log in to his account using his hall id and password.

**For User:**

2. Students should be able to view the mess bill and hall bill.

**For System:**

2.1 Students can view their mess/hall bill of previous months.

2.2 Students can also see if the bill is paid or not.

2.3 Students can see the amounts they have paid till last month from the beginning and see if they have paid less or more than the required bill and if he has paid more, how much extra money is left to his account.

2.4 To view this they also need to log in to the system using their hall id and password.

**For User:**

3. Students should be able to read notice.

**For System:**

3.1 Students can read the notice through website.

3.2 There will be a notice section in website where all the notices will be published with their publishing dates.

3.2 This feature also requires valid log in.

**For User:**

4. Student should be able to update their personal information

**For System:**

4.1 Student shall be able to update some of their information that changes frequently i.e. contact information, present address, Local Guardian etc.

4.2 To do this, student needs to log in to their account.

**Hall staffs:**

**For User:**

5. Hall staffs should be able to insert the list of purchased groceries and the expense.

**For System:**

5.1 Hall staffs should be able to input purchased groceries and amount for the previous days up to today by signing into the page assigned to him.

5.2 There will be four columns item name, price per unit, total unit and price.

5.3 There will be two option.

**⇒** Store in: In this system he will be able to input the information of buying the groceries.

**⇒** Day basis expense: He can store all the items along with their expense on daily basis.

**For User:**

6. Hall staffs should be able to activate or deactivate meal status of students.

**For System:**

6.1 In case a student haven’t paid his dues, it is allowed to the hall staffs to sign on/off meal for the students. He will be able to activate or deactivate account for each student account. If he deactivates a student’s account with one of the specific reasons given below, the student will be able to view all his bills but won’t be able to on his meal.

6.2 For hall staffs, it is allowed to turn on/off today’s and tomorrow’s meal.

**For User:**

7. Hall staffs should be able to edit meal chart.

**For System:**

7.1 Every month, the meal chart is changed in the hall according to student’s choice. The hall staff will be able to update these changes through his page after logging in.

**Hall manager/ authority:**

**For User:**

8. He should be able to admit new students to hall and can also deactivate accounts of students.

**For System:**

8.1 When a new students admit into hall. The hall manager will insert the students necessary information (i.e. students name, department, student id, session, present address, permanent address, contact no, guardian’s information etc.).

8.2 When a student cancel his/her admission to hall, the hall manager can deactivate his/her account so that no further mess bill or hall bill should not be added his/her account.

8.3 If that student again re-admitted into hall, the hall manager can activate that students account again.

**For User:**

9. He should be able to enlist all the students who have paid bill timely and who haven’t.

**For System:**

9.1 The hall manager can generate list of student who paid the bill and who haven’t of a particular month.

9.2 He can also generate the report of students who have overdue. (Total due money greater than a specific amount)

**For User:**

10. He should be able to keep track of all the hall expenses and accounts.

**For System:**

10.1 The hall accounting information (viewing and editing) will be accessible from the hall manager and hall authority’s account.

**For User:**

11.   Hall Manager should be able to enter the notice.

**For System:**

11.1 Hall manager will have his own account, by logging into the account he can post notices in the notice section.

11.2 He can edit notice before publish it.

11.3 He can view preview of the notice.

11.4 Total 10 notice can be stored into the notice section. To publish new notice, the hall manager needs to remove one of the previous notice.

11.5 Hall manager can show/hide notices.

**For user:**

12. Hall manager should be able to edit the information.

**For System:**

12.1 Hall manager shall be able to able to edit information of student.

12.2 In case of any mistakes occur by the hall staff, The Hall manager shall be able to change that.

**For user:**

13. If a student forget their password, hall manager can change it.

**For System:**

13.1 If a student forget their password, they need to submit an application to hall manager.

13.2 Hall manager then change the password.

13.3 The soft copy of the application is required while changing the password.

**Functional Requirements:**

In Software engineering and systems engineering, a functional requirement defines a function of a system or its component means functional requirements describe what the system should do. In our hall messing system, the prime functional requirements are:

1. Every student shall be uniquely identified by their student id and hall stuff, manager, authority shall be uniquely identified by their employee id which they will use as their username to sign in to their accounts.
2. The students shall be able to see the notices in the home page.
3. There shall be individual accounts for each students, hall manager, hall staff and the administrator. They shall be able to log in to their account by selecting their role (i.e. student, hall-staff, hall-manager, admin) and entering their username and password.
4. Students shall be able to view the contact information of hall staffs and authority along with the dos and don’ts applicable for students residing at hall.
5. On signing in to the individual account a student shall be allowed to alter certain permitted information like address, phone, email etc. and as such hall authority will remain updated about each student.
6. Signing in to the account shall enable a student to view to options  
     
    **⇒** Hall bill  
    **⇒** Mess bill  
     
   On clicking the hall bill option student can view monthly bill, amount deposited, shortage or remaining amount in the account and also the fines they have been charged due to late deposition.  
     
   On clicking the mess bill option students will be able to view the monthly mess bill, the amount short or the amount still remaining in the account.
7. Individual student account shall let the student sign his meal. Students are allowed to sign the meal for the next day just the day before.
8. Hall staffs shall be able to view list of students who signed their meal. He can search students by their ID, hall ID to sign that particular student’s meal. He has the authority to deactivate meal signing option of a student if he hasn’t cleared his dues.
9. Hall staffs shall insert the list of groceries bought including their price, amount, price per unit to keep track of the hall expenses and also the amount deposited by the students every month.
10. The hall manager and the hall authority shall have the authority to see the amount of bills paid by all the students till now and also the monthly amount of expenses of the hall in detail. Thus they can control the overall accounting system of the hall.
11. The hall manager can post urgent notices in the notice section and he can allocate or cancel hall seats.

**Non Functional Requirements:**

In systems engineering and requirements engineering, a non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. [7] In short, non-functional requirements describe how the system works.

Some non-functional requirements of our system is given below:

* **Performance Requirement**: Every function provided by the system should be robust without slowing down the system or annoying the users. According to our statement, if a student do not signed his/her meal manually, he/she has to sign it online. So there will be a lot of query online at the same time. So the system should not slow down due to the number of queries at a time.
* **Space Requirement:** The database shall contain all the information till it has been created. So, the database needs to be as efficient as possible to maintain disk space. As the system is web-base, the web-page should be efficient also so that the user needs less data-usage to load the web-page.
* **Usability Requirement:** The Hall Messing System should be available for 24 hours to all students and hall employees.  If the system goes down ever, it shouldn’t be down for more than 15 minutes.
* **Dependability Requirement:** Though we are trying to make whole process online so that anyone can get service from anywhere, we are considering not to be fully dependent on the online system. So, students can sign their meal manually at the hall office. Later the hall staff will update the information as per his comfortable time. So, in case of any internet failure, the process won’t get disturbed.
* **Security Requirement:** To ensure the security each students shall have separate accounts along with username and password. Whenever someone logs into his account, an immediate mail shall be sent to him to make sure that no else had logged into his account. So no student can access another student’s account without their help.
* **Operational Requirement:**  All the information provided by the system should be up-to-date and correct. The staff can only insert amount paid and meal expenses of the present time, but only the hall manager and hall authority shall have access to the complete information of student bill, amount of groceries used and hall expenses till date for security purpose.
* **Environment Requirement:** The system can be operated at any environment. We set our platform to be web-based so that it can be accessible from any devices/environment. No matter the user uses Windows, Linux, Mac or Android environment, our system can be accessible.
* **Development Requirement:** User interface of the system shall be easy to understand for the user. The user shall not need any previous experience to use the system properly.
* **Regulatory Requirement:** The system should be tested every 3 years. In case of any major change in hall messing system, the system should be updated**.**
* **Ethical Requirement:** Every individual account should be accessed by only the legal account owner.
* **Accounting Requirement:** The system will do necessary accounting by itself. No manual accounting is needed. The system requires necessary data to perform accounting.

**Conclusion:**

We sincerely wish that the software we are about to create will ease out the hall life for students and also suffice the hall management committee to carry out necessary works in a smooth and reliable manner. We hope to expand the project further, on completion of the basic aims with which it will be built and provide our authority with a utilitarian application.

**Reference:**

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