**Software Requirements Specifications**

1. **Introduction**

Splitting the bill at a restaurant is currently done manually which requires a lot of effort in calculating who owes how much. This usually ends in either people getting stuck in calculations or they give up and this leads to an unequal distribution of bill. There is a vast difference between the price range of the vegetarian and the non-vegetarian food which leads to a lot of difference in the spectrum of projected billing.

We have decided to investigate the use of an Automated Bill Splitting System. This system would be used by people which will keep a record of the food eaten and price at a restaurant, it would work to produce the proper representation of the memory owed. The purpose of this document is to analyse and elaborate on the high-level needs and features of the *Automated Bill Splitter.* The details of what all are the needs of the *Automated Bill Splitter* and it fulfils these needs are detailed in the use-case and supplementary specifications.

**1.1 Purpose**

The purpose of **Software Requirements Specification (SRS)** document is to describe the external behaviour of the *Automated Bill Splitter.* Requirements specification defines and describes the operations, interfaces, performance and quality assurance requirements of the *Automated Bill Splitter.*  The document also describes the non-functional requirements such as the user interfaces. It also describes the design constraints that are to be considered when the system is to be designed, and other factors necessary to provide a complete and comprehensive description of the requirements of the software. The Software Requirements Specifications (SRS)captures the complete software requirements for the system, or portion of the system. Requirements described in this document are derived from the Vision document prepared for the *Automated Bill Splitter.*

* 1. **Scope**

The Software Requirements captures all the requirements in a single document. *Automated Bill Splitter* that is to be developed provides the members with information, online blocking of food and many other facilities.

*Automated Bill Splitter* is supposed to have the following features:

* The product *Automated Bill Splitter* is up and running all day.
* The system provides login facilities to the users.
* The system provides the members with the option to check their account and / or change their options like password of the account whenever needed all through the day during the hours.
* The system updates the billing system as and when the members borrows or returns.
* The menu is automated and the decision of offering the food based on the borrow/due condition is automatically decided.
* We also have an order department, which manages to add or remove an item from the Menu.

The feature that are described in this document are used in the future phases of the software development cycle. The features described here meet the needs of all the users. The success criteria for the system is based in the level up to which the features described in this document are implemented in the system.

**1.3 References**

The SRS document uses the following documents as references:

* 1.4.1 ***Information Security Requirements:*** To provide security to the system based on the current security system currently used.
* 1.4.2 ***The Billing System:*** To provide the interface between the system being developed and the billing system currently in use to update the member account due as and when they borrow and return.

**1.4 Overview**

The SRS will provide a detailed description of the *Automated Bill Splitter.*  This document will provide the outline of the requirements, overview of the characteristics and constraints of the system.

1.5.1 ***Section 2:*** This section of the SRS will provide the general factors that affect the product and its requirements. It provides the background for those requirements. The items such as product perspective, product function, user characteristics, constraints, assumptions and dependencies and requirements subsets are described in this section.

1.5.2***Section 3:*** This section of SRS contains all the software requirements mentioned in section 2 in detail sufficient enough to enable designers to design the system to satisfy the requirements and testers to test if the system satisfies those requirements.

1. **Overall Description**

* **Product Perspective**

The *Automated Bill Splitter* to be developed benefits greatly the members. The system provides menu catalogue and information to members and helps them decide on the food to order from the menu. The Admin can keep the catalogue updated all the time so that he members get the updated information all the time.

The product has to interact with other systems like: Internet, Billing System and the Information Security System.

The *Automated Bill Splitter* provides automated system for splitting the bill between multiple co-users. The product functions are more or less the same as described in the product perspective. The functions of the system include the system providing different type of services based on the type of users [Members/Admin] .

* The member should be provided with the updated information about the menu catalogue.
* Provisions for the members to borrow the money they want, if all the other required rules hold good.
* The member is given a provision to check his account information and change the account information any time in the given valid period.
* The admin is provided with interfaces to add/delete the menu available in the menu catalogue.
* The members when complete the borrowing or returning process, the due to be paid by the member must be calculated and the information about the member and the due amount is sent to the billing system.
* The system provides the login facility to the users.
* **User Characteristics**

The users of the system are members and administrators who maintain the system. The members and the admins are assumed to have basic knowledge of the computers and internet browsing. The administrators of the system to have more knowledge of the internals of the system and is able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.

* **Constraints**
* The information of all the users must be stored in a database that is accessible by the *Automated Bill Splitter.*
* The device must be compatible with internet applications.
* *The Automated Bill Splitter* is connected to the server computer and is running all 24 hours a day.
* *The users access the Automated Bill Splitter* from any computer that has internet browsing capabilities and an internet connection.
* *The billing system* is connected to the *Automated Bill Splitter* and the database used by the billing system must be compatible with the interface of the *Automated Bill Splitter.*
* The users must have their correct usernames and passwords to enter into the *Automated Bill Splitter.*
* **Assumptions and Dependencies**
* The users have sufficient knowledge of computers.
* The server computer should have internet connection and internet server capabilities.
* The users know English language, as the user interface will be provided in English.

1. **Specific Requirements**

This section describes in detail all the functional requirements.

**3.1 Functionality**

*3.1.1 Logon Capabilities*

The systemshall provide the users with logon capabilities.

*3.1.2 Mobile Devices*

The Automated Bill Splitter is also supported on mobile devices such as

cell phones.

*3.1.3 Alerts*

The system can alert the administrator in case of any problems.

* 1. **Usability**
* The system shall allow the users to access the system from the internet using HTML or it’s derivative technologies. The system uses a web browser as an interface.
* Since all users are familiar with the general usage of browsers, no specific training is required.
* The system is user friendly and self-explanatory.
  1. **Reliability**

The system has to be very reliable due to the importance of data and the damages incorrect or incomplete data can do.

* + 1. *Availability*

The system is available 100% for the user and is used 24hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.

* + 1. *Mean Time Between Failures (MTBF)*

The system will be developed in such a way that it may fail once in a year.

* + 1. *Mean Time to Repair (MTTR)*

Even if the system fails, the system will be recovered back up within an hour or less.

* + 1. *Accuracy*

The accuracy of the system is limited by the accuracy of input provided by the users using the splitter system.

* + 1. *Maximum Bugs or Defect Rate*

Not specified.

* + 1. *Access reliability*

The system shall provide 100% access reliability.

* 1. **Performance**
     1. *Response Time*

The splash Page or Information page should be able to be downloaded within a minute using a 56K modem. The information is refreshed every two minutes. The access time for a mobile device should be less than a minute. The system shall respond to the member in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time when doing large processing jobs.

* + 1. *Administrator Response*

The system shall take as less time as possible to provide service to the administrator.

* + 1. *Capacity*

The system is capable of handling 250 users at a time.

* + 1. *Resource utilization*

The resources are modified according the user requirements and also according to the food requested by the users.

* 1. **Supportability**

The system designers shall take in to considerations the following supportability and technical limitations.

* + 1. *Internet Protocols*

The system shall comply with the TCP/IP protocol standards and shall be designed accordingly

* + 1. *Information Security Requirement*

The system shall support the product security requirements.

* + 1. *Billing System Data Compatibility*

The member balance amount that will be calculated and sent to the billing system shall be compatible with the data types and design constraints of the billing system.

* + 1. *Maintenance*

The maintenance of the system shall be done as per the maintenance contract.

* + 1. *Standards*

The coding standards and naming conventions will be as per the American Standards.

* 1. **Design Constraints**
     1. *Software Language used*

The languages that shall be used for coding the Automated Bill Splitter are Active Server Pages(ASP), Java Servlets, Java Server pages(JSP), HTML, Java Script and VBScript. For working on the coding phase of the Automated Bill Splitter, the Internet Information Services(IIS) Sever needs to be installed.

* + 1. *Development tools*

Will make use of the available Java Development Tool kits for working with Java Beans and Java Server pages. Also will make use of the online references available for developing programs in ASP, HTML and the two scripting languages, Java Script and VB Script.

* + 1. *Class Libraries*

Will make use of the existing Java Libraries available for JSP and Servlets. Also we need to develop new programs using ASP and scripting languages.

* 1. **On-line User Documentation and Help System Requirements**

Online help is provided for each of the feature available with the Automated Bill Splitter. All the applications provide an on-line help system to assist the user. The nature of these systems is unique to application development as they combine aspects of programming (hyperlinks , etc ) with aspects of technical writing (Organization, presentation). Online help is provided for each and every feature provided by the system.

The user manual describes the use of the system. It describes the use of the system on mobile systems. The user manual should be available as a hard copy and also as online help.

An installation document will be provided that includes the installation instructions and configuration guidelines, which is important to a full solution offering. Also, a Read Me File is typically, included as a standard component. The Read Me included a “what’s New with This Release” section and a discussion of compatibility issues with earlier releases. Most users also appreciate documentation defining any known bugs and workarounds in the Read me file.

Since the installation of Automated Bill Splitter is a complex process, our experts will do it. So an installation guide will not be provided to the user.

* 1. **Purchased Components**

The System Administrator will need to purchase the license for IIS Server. Mostly it is available with windows environments. So the system need not purchase any licensing products.

* 1. **Interfaces**
     1. *User Interfaces*

Will make use of the existing Web Browsers such as Microsoft Internet Explorer or Netscape. The user -interface of the system shall be designed as shown in the user- interface prototypes.

* + 1. *Hardware Interfaces*

The existing Local Area Network (LAN) will be used for collecting data from the users and also for updating the Menu Catalogue.

* + 1. *Software Interfaces*

A firewall will be used with the server to prevent unauthorized access to the system.

* + 1. *Communications Interfaces*

The Automated Bill Splitter will be connected to World Wide Web.