# SOFTWARE REQUIREMENTS SPECIFICATION

---

# AITS

## **A**UTOMATED **I**NVESTMENT **T**AXATION **S**YSTEM

*Prepared By*
*Harshil Bhatia - B19CSE038*
*Lokesh Bamb - B19CSE044*

*Submitted To*
*Dr. Sumit Kalra*

# Table of Contents

# 1. Introduction

The following subsections of the Software Requirements Specifications (SRS) document should provide an overview of the entire SRS, with context, Scope and summary of the document. The aim of this document is to gather and analyse in depth insight of the AITS.

## 1.1 Context

The succeeding document provides a detailed overview of the AITS( Automated Investment Taxation System), it's parameters, goals. This document describes the user interface, software and performance requirements. This SRS document is intended for the development and design team.

## 1.1 Problem Specification

Post the recent stock market crash, a rise in the number of retail investors has been observed. Most of these investors are novices and just understand claiming profits, but don't know the nuisances for filling the income tax return for the same. Filing an ITR is a complicated task, and one has to consult a chartered accountant. and disclose all their investments. Hence a gap in the market has been observed for a software that can assist the investor in automating the process and reducing it to just filling in the headers in the ITR form.

## 1.3 Scope

Primarily, the scope of the document pertains to describing the current issues faced by the investors and describing an efficient solution for the same.The targeted audience of the AITS ranges from small time novice investors to large conglomerates. Post the initial rounds, more computation power can be used for the management of larger clientele.

## 1.4 Definitions, Acronyms, and Abbreviations.

1. ITR : Income Tax Return.
2. STCG : Short Term Capital Gain.
3. LTCG : Long Term Capital Gain.

## 1.5 Overview

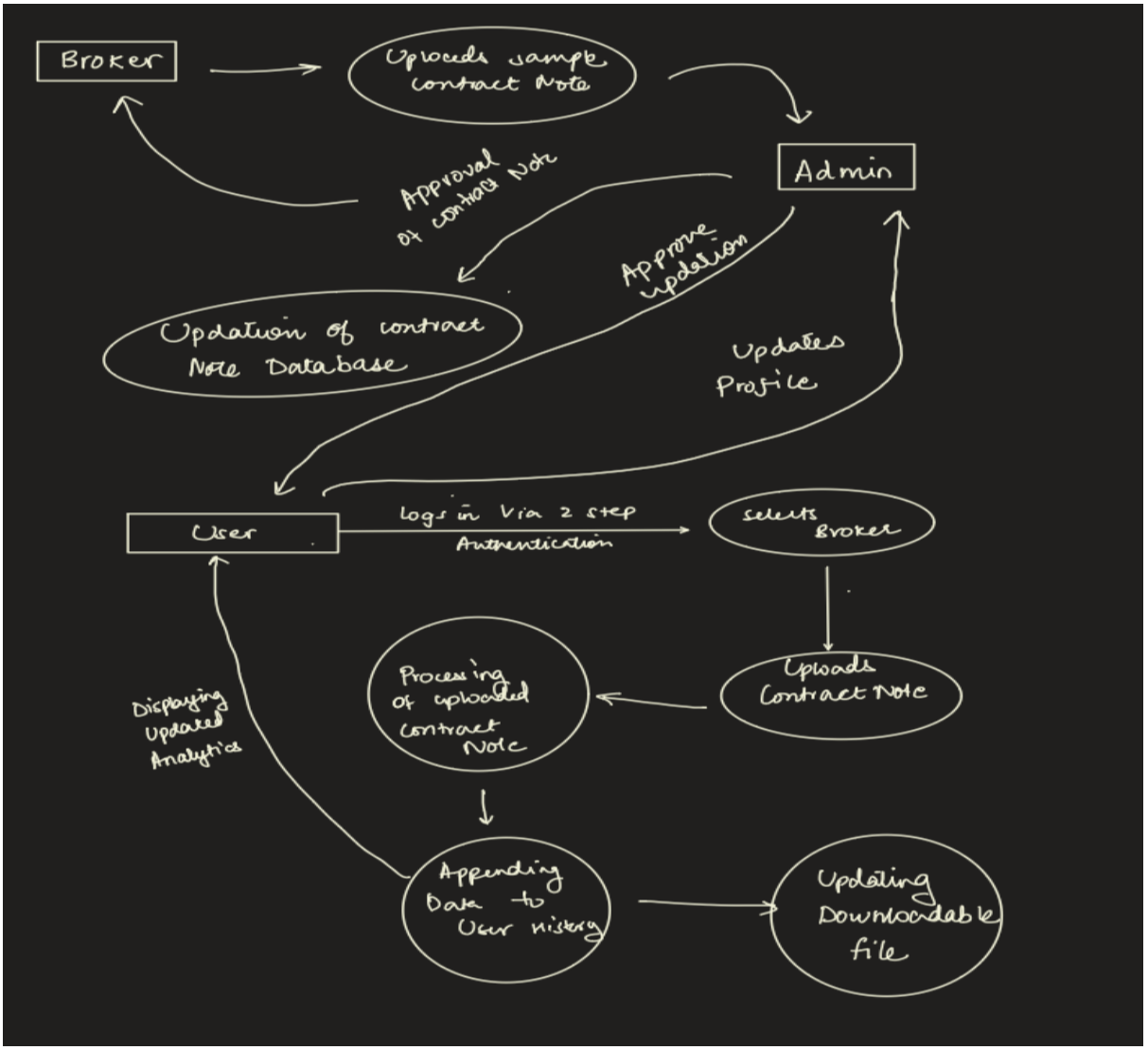
The remaining sections of this document provide a description, including characteristics of the users of this project, and the functional and data requirements of the product.  We start with a general description of the aforementioned project. The succeeding sections specify the technical description including functional, non functional and performance requirements of the system as is intended for the developers. We also provide a brief overview on the interface specification of the project. In the end we conclude with the Budget estimates for the system,

# 2. General Description

*Describe the general factors that affect the product and its requirements. This section does not state specific requirements. Instead, it provides a background for those requirements, which are defined in section 3, and makes them easier to understand. In a sense, this section tells the requirements in plain English for the consumption of the customer. Section3 will contain a specification written for the developers.*

## 2.1 Workflow.

In the following section, we provide a schematic diagram pertaining to the workflow of the product, i.e we define the methodology implemented for the data flow through the software.



The basic workflow of the product is that it accepts a contract note as an input from the user and then crunches the numbers from it which are required by the investor to be filled into the ITR-Form and provides them in a simple .xlsx format.

## 2.2 Use Cases

A usage scenario for a piece of software suggests the situations where a piece of software may be useful. We provide an outline on how the user interacts with the software and how the software reacts to it.

When a user tries to sign up the user undergoes a 2 step verification process to ensure proper security constraints of the software are being met. Further, as the user inputs their personal information a promise subroutine is triggered in the software which sends a verification email to the user's specified email address.

Post the first interaction with the machine, the user tries to upload the contract note. To do so, the user selects whether they want to use their default broker or a new broker. This is enabled using the default parameterization of functions in the program.

Uploading a file, beyond the specified size limit is not possible, if the user tries to do so a prompt is triggered informing the user that their file exceeds the specified document size limit.

Analytics Page, when the user accesses the analytics page, it provides the user with an analytical overview of their investments and provides them with different graphs to compare their achievements with the general market.

## 2.3 Overall Description of the Software Product

Post the recent stock market crash, a rise in the number of retail investors has been observed. Most of these investors are novices and just understand claiming profits, but don't know the nuisances for filling the income tax return for the same. Filing an ITR is a complicated task, and one has to consult a chartered accountant for the same. This inturn leads the person to disclose all their investments. Hence, a software is needed to fill in the gap observed in the market. Our software aims to simplify the process of filing itr by eliminating the manual work a person has to do in order to file an itr. With the growing market of stock brokers, the contract notes are provided in a different format from each entity, our system inculcates all the different stock brokers present in the market. We intend to automate the process to an extent so as the person just has to fill in the investment headers. The system aims to provide security to the investments of the personnel using our application, furthermore, the real time investment portfolio of the user will also be displayed.

# 3. Functional Requirements

This section contains the functional  requirements for the AITS. Functional requirements define the fundamental actions that must take place in the software in accepting and processing the inputs and in processing and generating the outputs.

1. Initial HMI:
    - 1.1. Sign Up
        - 1.1.1. Choose account type
        - 1.1.2. Enter Email id
        - 1.1.3. Enter Password
        - 1.1.4. Enter Mobile Number
        - 1.1.5. Confirm Password
        - 1.1.6. OTP verification
        - 1.1.7. Enter Secret questions
        - 1.1.8. Enter preferred broker
        - 1.1.9. CAPTCHA
    - 1.2. Updating User database. *
2. Subsequent HMI:
    - 2.1. Login.
        - 2.1.1. Enter email Id
        - 2.1.2. Enter Password
        - 2.1.3. OTP verification and/or secret questions
    - 2.2. CAPTCHA.
    - 2.3. Forgot Password functionality.
        - 2.3.1. Send user email with new password
3. Post-Login Interactions:
    - 3.1. User Login:
        - 3.1.1. User Profile.
            - 3.1.1.1. Name.
            - 3.1.1.2. Email.
            - 3.1.1.3. Mobile.
            - 3.1.1.4. Default Broker Selection
        - 3.1.2. User Profile Editing.
            - 3.1.2.1. Change Email.
            - 3.1.2.2. Change Password.
            - 3.1.2.3. Change Mobile.
            - 3.1.2.4. Change Default Broker
        - 3.1.3. Uploading Contract Note.
            - 3.1.3.1. Broker Selection in case of variation
        - 3.1.4. Processing of Contract Note.
            - 3.1.4.1. Unformating Data to dataframe object
            - 3.1.4.2. Segregating User gains to STCG and LTCG.
        - 3.1.5. Encrypting User’s Investment history.
        - 3.1.6. Updation of the Database.
        - 3.1.7. Downloading ITR support Report.

3.1.7.1. Retrieving database, decrypting and providing an .xlsx downloadable.

3.2. Admin:

3.2.1. Admin Dashboard.

3.2.1.1. Users Database display

3.2.1.2. Broker contract note authentication

3.3. Broker:

3.3.1. Broker format registration.

3.3.1.1. Choose account type

3.3.1.2. Enter Email id

3.3.1.3. Enter Password

3.3.1.4. Enter Mobile Number

3.3.1.5. Confirm Password

3.3.1.6. OTP verification

3.3.1.7. Enter Secret questions

3.3.1.8. CAPTCHA

# 4. Interface Requirements

The mode of interactions for the GUI of our web based application are mouse click, keyboard, touchscreen(depending on availability). The protocol used will be HTTPS.

1. Sign up Page.
    1.1. Form for entering information
2. Login Page.
    2.1. Form for entering information
    2.2. Forget password availability
3. Analytics Dashboard.
    3.1. Equity curve and Spark line rendering from Dataframes
    3.2. Textbox.
4. Uploading Page.
    4.1. Button Display
5. Downloading Page.
    5.1. Button Display
6. Profile Page.
7. Admin Dashboard.
    7.1. User Listing.
    7.2. Broker Contract Note update approval.
    7.3. User Profile Change Approval.
8. Broker Format Uploading Page.
    8.1. Uploading Example format

The user interface for the software shall be compatible with any browser such as Google Chrome, Edge or Mozilla by which users can access to the system. Since the application must run over the internet, the machine is required to be connected to the internet and will act as an interface for the system.

# 5. Performance Requirements

This section specifies both the static and the dynamic numerical requirements placed on the software or on **human interaction** with the software, as a whole.

1. Minimize server-end processing time.
2. Minimum 2GB Quad Core-RAM can support at least 1000 concurrent users.
3. The database with 4GB Dual Core-RAM can support at least 8000 concurrent queries.
4. Refresh the downloadable .xlsx within 15s.
5. Once the file has been uploaded, the submission time of the file shall be less than 1s.
6. First time user registration should be updated in the database within a second.

# 6. Design Constraints.

Design constraints are the limitations to the design. These include imposed limitations that you don't control and limitations that are self-imposed as a way to improve a design. Our system is largely based on taxation laws, hence a ***compliance constraint*** has been imposed. The designers have to do market research for the same.
The design should be fast, readable and user friendly.
*Stylistic Constraints* - dynamic.

The designer is considered as an extension to the ideas provided by the user.

*Specify design constraints that can be imposed by other standards, hardware limitations, etc.*

# 7. Non-Functional Requirements.

## 7.1 Security Requirements.

The basic purpose of the software is to provide privacy to the investors about their money matters, thus the user investment history has to be well secured. So, to provide a secure platform we provide a two-step OTP verification via e-mail and/or we can also add a verification layer which asks the user two secret questions every time he/she logins in.

## 7.2 Understanding Taxation Policy.

The developer and even the user (for self-verification purposes) has to make themselves up-to-date to all the new taxation policies and norms introduced by the Ministry of Finance, SEBI and Income Tax Department.

## 7.3 Safety Requirements.

*We need to maintain more than one copy of the user and user investments database as in case of corruption of one, the system would not lose all the data and would stay available to the users.*

# 8. Budget Estimate.

*All the salary estimates have been taken from the glassdoor site. We have estimated the budget using the Cost To Company measure of salaries provided.*
*Considerations - We have considered 252 working days for each individual and an 8 hour workday has also been taken into account.*

| Automated Investment Taxation System | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Sr No.** | **Task name / Title** | **Task Assigned To** | **Planned start date** | **Planned end date** | **Duration (hours)** | **Hourly pay** | **Total Pay** |
| **1** | **Planning.** | | **05/03/2021** | **15/03/2021** | **88** | | |
| 1.1 | Brain Storming | Project Manager | 05/03/2021 | 09/03/2021 | 40 | 1,984.13 | 79,365.08 |
| 1.2 | Finalisation and Ideation Phase | Project Manager | 10/03/2021 | 14/03/2021 | 40 | 1,984.13 | 79,365.08 |
| 1.3 | Seeking Approval | Project Manager | 15/03/2021 | 15/03/2021 | 1 | 1,984.13 | 1,984.13 |
| **2** | **Analysis** | | **16/03/2021** | **24/03/2021** | **72** | | |
| 2.1 | Discussion with Stakeholders. | Project Manager | 16/03/2021 | 19/03/2021 | 32 | 1,984.13 | 63,492.06 |
| 2.2 | Document Current Systems. | Project Manager | 17/03/2021 | 20/03/2021 | 32 | 1,984.13 | 63,492.06 |
| 2.3 | Software Requirements. | Project Manager | 18/03/2021 | 21/03/2021 | 32 | 1,984.13 | 63,492.06 |
| 2.4 | Familiarising with Taxation Norms | Project Manager,Taxation Lawyer, 2x Developers | 16/03/2021 | 24/03/2021 | 72 | 6,761.90 | 486,857.14 |
| 2.5 | Effort Estimation | Project Manager | 22/03/2021 | 22/03/2021 | 8 | 1,984.13 | 15,873.02 |
| **3** | **Design** | | **25/03/2021** | **30/03/2021** | **48** | | |
| 3.1 | UML Diagram | Project Manager | 25/03/2021 | 29/03/2021 | 40 | 1,984.13 | 79,365.08 |
| 3.2 | Software Design | Software Architect (SDE3) | 27/03/2021 | 29/03/2021 | 17 | 1,587.30 | 26,984.13 |
| 3.3 | Interface Design | 2x UI/UX designer | 28/03/2021 | 30/03/2021 | 24 | 1,488.10 | 35,714.29 |
| **4** | **Implementation** | | **31/03/2021** | **21/04/2021** | **176** | | |
| 4.1 | Deploy Development Environment | 2x Developer | 31/03/2021 | 31/03/2021 | 4 | 2,777.78 | 11,111.11 |
| 4.2 | Page Template | 2x UI/UX designer | 31/03/2021 | 03/04/2021 | 28 | 1,488.10 | 41,666.67 |
| 4.3 | Develop System Modules | 2x Developer | 06/04/2021 | 18/04/2021 | 104 | 2,777.78 | 288,888.89 |
| 4.4 | Stabilisation | 2x Developer | 19/04/2021 | 19/04/2021 | 8 | 2,777.78 | 22,222.22 |
| 4.5 | Phase-I Testing | Project Manager, 2x Developer, 2x UI/UX designer | 20/04/2021 | 21/04/2021 | 16 | 6,250.00 | 100,000.00 |
| 4.6 | Development Completed | | 21/04/2021 | 21/04/2021 | 0 | | |
| 4.7 | Web Based UI Design Completed | | 03/04/2021 | 03/04/2021 | 0 | | |
| **5** | **Integration and Testing** | | **22/04/2021** | **01/05/2021** | **74.5** | | |
| 5.1 | Phase-II Testing | Project Manager, 2x Developer, 2x UI/UX designer | 22/04/2021 | 26/04/2021 | 40 | 6,250.00 | 250,000.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5.2 | Release Beta Prototype | | 24/04/2021 | 24/04/2021 | 0 | | |
| 5.3 | Beta Launch Review | Project Manager, 2x Developer, 2x UI/UX designer | 28/04/2021 | 30/04/2021 | 24 | 6,250.00 | 150,000.00 |
| 5.4 | Public Rollout | | 01/05/2021 | 01/05/2021 | 0 | | |
| | | | | | | | |
| | **Excees Provided to Project Manager** | **Project Manager** | | | 19 | 1,984.13 | 37,698.41 |
| | | | | | | | |
| | | | | | | **Estimated Project Cost:** | **1,897,571.43** |

## Employment Team -

| Postion | Annual Pay | Hourly Pay |
|---|---|---|
| **Project Manager** | 4000000 | 1984.126984 |
| **Designer** | 1500000 | 744.047619 |
| **Developer** | 2800000 | 1388.888889 |
| **Taxation Lawyer** | | 2000 |
| **Software Architect (SDE3)** | 3200000 | 1587.301587 |

*Development Completed, Web Based UI Design Completed, Release Beta Prototype and Public rollout are milestones of the project.**For the designing and development duration we have considered that the project manager works 1 hr per day, to get the progress report, conduct meetings and provide feedback. For the phase 1 and 2 testing the Project manager is allocated 2 hrs per day.***