POWER TOOLS MANAGEMENT
SYSTEM

SANTHIGIRI
COLLEGE OF COMPUTER SCIENCES
Affiliated to MG University and Approved by AICTE

A Project Report Submitted in Partial Fulfilment of the
Requirements for the Award of the Degree of

Bachelor of Computer Applications

By

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Under the guidance of

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CERTIFICATE

This is to certify that the report titled **Powertools Management System** *is a bonafide record of work done by* **Thomas Mathew (200021092473) , Muhammed Rashid (200021092444) and Teena Tom (200021092472)** *of Santhigiri College of Computer Sciences in partial fulfillment of the requirements of Fifth Semester of Bachelor of Computer Applications during the year 2022 .*

Fr. Paul Parakattel CMI   **Ms. Amitha Joseph**   **Dr. Neetha Thomas**

Principal   **H O D**   **Project Guide**

Submitted for the examination held on…………………...

External Examiner

DECLARATION

We, Thomas Mathew, Muhammed Rashid and Teena Tom hereby declare that the project report, titled **"Powertools Management System"** is a record of original work undertaken by us for the award of the degree of Bachelor of Computer Applications. We have completed this project under the guidance of Dr.Neetha Thomas, Department of Computer Science.

We also declare that this project has not been submitted for the award of any degree. We hereby confirm the originality of the work.

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Date:

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ABSTRACT

POWER TOOLS MANAGEMENT is a project based on renting power tools. This web application contains power tools according to the customers need.

Through this system administrators can able to manage the power tools according to the customers need by booking. This web application can be accessed in different users at same time.

The administrators can add or remove power tools. The users of the system can view the details of the power tools with per day cost and book if it is available, through the system itself. The admin is able to view and handle the items booked by the users.

Both the admin and user have login page and they need to log in to the application with their credentials to use the software. The Admin can add and remove category of power tools. The admin is responsible for handling the master entries of the database.

The web application contains payment gateway so that customers can pay advance amount. The website then processes the entire data and generate the reports to the Admin. The reports includes stock report, tools booked ,most searched etc. Through the reports the admin can make necessary changes if needed, so that transparency and efficiency can be maintained.

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ABBREVIATION

IDE	Integrated Development Environment
CPU	Central Processing Unit
DBMS	Data Base Management System
RDBMS	Relational Data Base Management System
NF	Normal Forms
PK	Primary Key
FK	Foreign Key
DFD	Data Flow Diagram
PHP	Hypertext Preprocessor
SQL	Structured Query Language
WAMP	Windows, Apache, MySQL and PHP
HTML	Hyper Text Markup Language
SDLC	Software Development Life Cycle Models

1. INTRODUCTION

1.1 BACKGROUND AND MOTIVATION

In power tool management system, Power tools are used in industry, in construction, in the garden, for housework tasks such as cooking, cleaning, and around the house for purposes of driving (fasteners), drilling, cutting, shaping, sanding, grinding, routing, polishing, painting, heating and more. But this work is concerned with other sorts of tools: instruments, approaches, schemes, devices and methods (among many other synonyms) for tackling the differences in power that impede policies and institutions from achieving equitable natural resource management. A policy tool can be defined as a mechanism for influencing decisions and decision-making about natural resource management. Power tools are policy tools that address power asymmetries between margins listed and margin list.

The essential feature of a tool is that it is transferable, able to be taken from one context and utilized elsewhere. This does not mean that every tool is an ideal blueprint, appropriate to every challenge. Policy tools are instead sets of ideas that can be discovered and developed in one setting and then extracted and adapted to other contexts. A premise of this work is that tools can be usefully rent to the customer's need by updating status of the tool.

Types of policy tools are as varied as people's imaginations, but there is no point in designing tools for their own sake – tools are responses to particular tasks that need to be done. Some fairly formal policy tools are well known and easy to recognize, such as stakeholder analysis, but unorthodox or ad hoc tools could be equally useful, such as cooking a feast to entice officials into discussing community grievances, or calling a surprise sit-in on a boiling hot day to draw attention to a protest march.

One of the main lessons from this work is that for most of us, a "tool" is an easy concept to grasp, but expressing what we do in terms of a transferable toolkit that can be picked up, understood and adapted by others is a very difficult task indeed. In general, we focus on our objective – and we design or select the ways of getting there as we go along. Often a method or tactic will only seem to be a tool in retrospect, when we try to describe to others how we achieved a certain goal. Thus, what in reality was muddling along suddenly appears well planned and formal when described as a tool.

No single tool is ever perfect. Old, proven, multi-purpose methods continue to offer more utility than new, custom-made techniques. Fully comprehensive, cohesive toolkits that provide approaches for every natural resource policy problem are unfeasible.

Concern with the "how to" should not overshadow the goal towards which the tool is used, and taking a tool at face value without considering its legitimacy, context or who is going to use it, can be dangerous. Tools have power – potentially to counter marginalization but also to entrench the status quo. Any tool is in the hands of the user to apply and adapt as best they can.

1.2 THE PROPOSED SYSTEM

The proposed website is developed to make the services of power tools through online.Through that help, the customers to access the service offered by the power tools Provider within a limited amount of time. The system also has an objective to check if the tools are available or not, balance enquiry, technical support. The main motive for developing this system is for reduce and overcome the complexity of the existing system. Nowadays this system can able to make a useful help to the customers. The customer is the user of the system .The user can register to this system and after registration, he/she can rent the power tools is it is available. This will allow the user to access the power tools.

We also included a provision for the users to give feedback after renting the power tools. This will help the customers to know the quality of the power

tools and help the admin to improve his tools. The system also provides a provision for the customers to register their complaints in this website. This will help the customers to get technical supports faster and resolve it. As a customer, he has the right to know about the tools that are available for them. The system will provide the tools that are available for him and if the proposed tool is in use, then he will receive a notification when it is available.

This system also promotes customers to book the tools according to the date he/she needed. The customers can view account details by login so that they can view the updated details of the tools, rent date, last booked tools etc. easily. Every farmer will able to search about the services and these results will help them to know more accurate details about the services.

1.3 PROJECT SCOPE

1.3.1. Limitations of Existing System

- Less payment methods

In the current era there are more methods of transferring money with a simple touchIf the payment method has failed, the money can be refunded in different ways. We can see many errors in the refund methods, like the refund may take 2,3 days and more. In some cases, the money may not be refunded at all.

- User Login

Users are facing a lot of problems login in to the recharge portal. The systems are not providing proper user logins.

- Time Consumption

The website consumes more time for the customers in applying the data and for renting and stuff it causes more time than usual, the details are complicated for the customers to understand so it causes them more time to understand and figure thing out.

1.3.2. Advantages of Proposed System

- The system provides direct communication with admin and Customer.

Customer can easily communicate directly with the admin. The system is design to make a connection between the Customer care centre and the Customer. So, it helps the customer to clear their doubts from the admin.

- The new system should be user friendly.

All the information is in a global language and some information can read in Malayalam that about scheme details, etc.

- intelligent recharging reminders are available.

We can access our account details at anytime, anywhere through user login facility.

2.SYSTEM ANALYSIS

2.1 INTRODUCTION

System analysis involves gathering the necessary information and using the structured tool for analysis. This includes the studying existing system and its

drawback, signing a new system and conducting cost benefit analysis. System analysis is a problem-solving activity that requires intensive communication between the system users and system developers. The system is studied to the minute detail and analysed. The system is viewed as a whole and the inputs to the system are identified. The outputs from the organization are traced through various phases of processing of inputs.

Software Engineering is the analysis, design, construction, verification and management of technical or social entities. To engineer software accurately, a software engineering process must be defined. System analysis is a detailed study of the various operations performed by the system and their relationship within and module of the system. It is a structured method for solving the problems related to the development of a new system. The detailed investigation of the present system is the focal point of system analysis. This phase involves the study of parent system and identification of system objectives. Information has to be collected from all people who are affected by or who use the system. During analysis, data are collected on the variable files, decision point and transactions handled by the present system. The main aim of system is to provide the efficient and user-friendly automation. So, the system analysis process should be performed with extreme precision, so that an accurate picture of existing system, its disadvantages and the requirements of the new system can be obtained.

There are a number of different approaches to system analysis. When a computer-based information system is developed, systems analysis (according to the Waterfall model) would constitute the following steps:

- The development of a feasibility study, involving determining whether a project is economically, technologically and operationally feasible.

- Conducting fact-finding measures, designed to ascertain the requirements of the system's end-users. These typically span interviews, questionnaires, or visual observations of work on the existing system.

Techniques such as interviews, questionnaires etc. can be used for the detailed study of these processes. The data collected by these sources must be scrutinized to arrive at a conclusion.

The conclusion is an understanding of how the system functions. This system is called the Existing System. The Existing system is then subjected to close observation and the problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as a proposal which is the proposed System. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is then presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is a loop that ends as soon as the user is satisfied with the proposal.

2.2 STAKE HOLDERS

2.2.1. Administrator

Administrator is the person who administers the system. He is the one who monitors the activities of website through the system. He can view and access all the details in the system. He has the authority to manage the plans and packages of tools. From the system he can get reports so that he can better understand about the data in the system. He can add a new tool, delete existing tools and also modify the price of existing package. He can collect all the details including customer id, phone number, email, pin code, aadhar number etc. He can delete the customer's when they asked for cancellation of the booked tool.

2.2.2. User

Users are the customers of this system. user can register in this system with their username and a password. They can login to their account 24*7. On his account he can see his details and update the personal details. He can rent the needed tools from this website through different payments service like net banking, cards and UPIs.

SOFTWARE REQUIREMENT SPECIFICATION

2.3.1 Admin

1. This System should have the provision for login using username and password.

2. Admin should have the permission to add/view/edit/remove/print customer details.

3. Admin should have the permission to search a customer with username.

4. Admin should have the permission to view the number of new customers of a specific Period.

5. Admin should have the permission to delete the users.

6. Admin should have the permission to view the list of all customers with their details as excel reports.

7. Admin should have the permission to view the list of all customers with their details in Particular states as a excel report.

8. Admin can send notification to customer when the tools are available.

9. The system should have the provision to logout.

Techniques such as interviews, questionnaires etc. can be used for the detailed study of these processes. The data collected by these sources must be scrutinized to arrive at a conclusion. The conclusion is an understanding of how the system functions. This system is called the Existing System. The Existing system is then subjected to close observation and the problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as a proposal which is the Proposed System. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is then presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is a loop that ends as soon as the user is satisfied with the proposal.

2.3.2 User

1. The system should provide the facility for the registered users to enter into the System by using their username and password.

2. This system should have the provision for the home page.

3. The user should have the privilege to view and print his/her payment receipt.

4. The users can register a new connection from this website.

5. The user can update his/her personal details like phone number, name etc.

6. The system should have the provision to logout.

7. The s user can review the product.

Sl.no	Name &Designation	Date	Accepted (Yes/No)
1	Dr.Neetha Thomas Assistant professor Santhigiri college of computer sciences		
2	Muhammad Rashid Developer		
3	Teena Tom Developer		
4	Thomas Mathew Developer		

2.3 FEASIBILITY STUDY

Feasibility is defined as the practical extent to which a project can be performed successfully.

To evaluate feasibility, a feasibility study is performed, which determines whether the solution considered to accomplish the requirements is practical and workable in the software.

Information such as resource availability, cost estimation for software development, benefits of the software to the organization after it is developed and cost to be incurred on its maintenance are considered during the feasibility study. The objective of the feasibility study is to establish the reasons for developing the software that is acceptable to users, adaptable to change and

conformable to established standards. Various other objectives of feasibility study are listed below.

• To analyse whether the software will meet organizational requirements.

• To determine whether the software can be implemented using the current technology and within the specified budget and schedule.

• To determine whether the software can be integrated with other existing software.

When our project guide as well as our client Dr. Neetha Thomas told us regarding the mini project and about Word to the Wise for getting the desired product developed, it comes up with rough idea about what all functions the software must perform and which all features are expected from the software.

Referencing to this information, we does a studies and discussions about whether the desire system and its functionality are feasible to develop and the output of this phase is a feasibility study report that should contained adequate comments and recommendations.

2.4.1 Technical Feasibility

Technical feasibility assesses the current resources (such as hardware and software) and technology, which are required to accomplish user requirements in the software within the allocated time and budget. For this, the software development team ascertains whether the current resources and technology can be upgraded or added in the software to accomplish specified user requirements. Technical feasibility also performs the following tasks.

• Analyses the technical skills and capabilities of the software development team members.

• Determines whether the relevant technology is stable and established.

• Ascertains that the technology chosen for software development has a large number of users So that they can be consulted when problems arise or improvements are required.

From our perspective there are two languages PHP, HTML and database MySQL which are used to develop this web based applications. PHP is used in the front end and MySQL is used in the back end. The Word to the Wise is web based and thus can be accessed through any browsers. As we are using these latest technologies which are currently trending and used by a number of developers across the globe, we can say that our project is technically feasible. Various types of feasibility that we checked include technical feasibility, operational feasibility, and economic feasibility.

2.4.2 Operational Feasibility

Operational feasibility assesses the extent to which the required software performs a series of steps to solve business problems and user requirements. This feasibility is dependent on human resources (software development team) and involves visualizing whether the software will operate after it is developed and be operative once it is installed. Operational feasibility also performs the following tasks.

• Determines whether the problems anticipated in user requirements are of high priority.

• Determines whether the solution suggested by the software development team is acceptable.

• Analyses whether users will adapt to a new software.

Determines whether the organization is satisfied by the alternative solutions proposed by the software development team. We found that our project will be satisfied for the client since we were discussing every detail about the software with the client at every step. The most important part of operational feasibility study is the input from client. So the software is built completely according to the requirements of the client. We have used the current industry standards for the software. Hence we can say that this software is operationally feasible.

2.4.3 Economic Feasibility

Economic feasibility determines whether the required software is capable of generating financial gains for an organization. It involves the cost incurred on the software development team, estimated cost of hardware and software, cost of performing feasibility study, and so on.

For this, it is essential to consider expenses made on purchases (such as hardware purchase) and activities required to carry out software development. In addition, it is necessary to consider the benefits that can be achieved by developing the software. Software is said to be economically feasible if it focuses on the issues listed below.

• Cost incurred on software development to produce long-term gains for an organization.

• Cost required to conduct full software investigation (such as requirements elicitation and requirements analysis).

• Cost of hardware, software, development team, and training.

It is estimated that our project is economically feasible as development cost is very minimal since the tools and technologies used are available online. It's a group student project so there are no personnel costs. Development time is well planned and will not affect other operations and activities of the individuals. Once the system has been developed, the companies purchasing the system will be providing with a manual for training purposes. There is no need to purchase new hardware since the existing computers can still be used to implement the new system.

2.4 SOFTWARE DEVELOPMENT LIFECYCLE MODEL

One of the basic notions of the software development process is SDLC models which stand for Software Development Life Cycle models. SDLC – is a continuous process, which starts from the moment, when it's made a decision to launch the project, and it ends at the moment of its full remove from the

exploitation. Software development lifecycle (SDLC) is a framework that defines the steps involved in the development of software. It covers the detailed plan for building, deploying and maintaining the software. SDLC defines the complete cycle of development i.e. all the tasks involved in gathering a requirement for the maintenance of a Product. Some of the common SDLC models are Waterfall Model, V-Shaped Model, Prototype Model, Spiral Model, Iterative Incremental Model, Big Bang Model, Agile Model. We used Agile Model for our Project.

Agile Model

Agile Model is a combination of the Iterative and incremental model. This model focuses more on flexibility while developing a product rather than on the requirement. In the agile methodology after every development iteration, the client is able to see the result and understand if he is satisfied with it or he is not. Extreme programming is one of the practical use of the agile model. The basis of this model consists of short meetings where we can review our project. In Agile, a product is broken into small incremental build. It is not developed as a complete product in one go. At the end of each sprint, the project guide verifies the product and after his approval, it is finalised. Client feedback is taken for improvement and his suggestions and enhancement are worked on in the next sprint. Testing is done in each sprint to minimize the risk of any failures.

Advantages of Agile Model:

☐   It allows more flexibility to adapt to the changes.

☐   The new feature can be added easily.

☐ Customer satisfaction as the feedback and suggestions are taken at every
   stage.

☐ Risks are minimized thanks to the flexible change process

Disadvantages:

☐ Lack of documentation.

☐ if a customer is not clear about how exactly they want the product to be, then the project would fail.

☐ With all the corrections and changes there is possibility that the project will exceed   expected time.

2.5 HARDWARE AND SOFTWARE REQUIREMENTS

2.5.1. Software Specification

This project is built upon the latest technology software.

Front end : HTML, CSS, JS

Development tool : PHP

Database: Mysql

Webserver:Wamp Server

Operating system: windows 10.

2.6.1.1. PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. As of January 2013, PHP was installed on more than 240 million websites (39% of those sampled) and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1994, the reference implementation of PHP is now produced by The PHP Group. While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Pre-processor, a recursive acronym. PHP code can be simply mixed with HTML code, or it can be used in combination with various templating engines and web frameworks. PHP code is usually processed by a PHP interpreter, which is usually implemented as a web server's native module or a Common gateway Interface (CGI) executable. After the PHP code is

interpreted and executed, the web server sends resulting output to its client, usually in form of a part of the generated web page -for example, PHP code can generate a web page's HTML code, an image, or some other data. PHP has also evolved to include a command-line interface (CLI) capability and can be used in standalone graphical applications. PHP is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.

2.6.1.2. MySQL

MySQL is the world's most popular open source database software, with over 100 million copies of its software downloaded or distributed throughout it's history. With its superior speed, reliability, and ease of use, MySQL has become the preferred choice for Web, Web 2.0, SaaS, ISV, Telecom companies and forward-thinking corporate IT Managers because it eliminates the major problems associated with downtime, maintenance and administration for modern, online applications.

Many of the world's largest and fastest-growing organizations use MySQL to save time and money powering their high-volume Web sites, critical business systems, and packaged software — including industry leaders such as Yahoo!, Alcatel-Lucent, Google, Nokia, YouTube, Wikipedia, and Booking.com.The flagship MySQL offering is MySQL Enterprise, a comprehensive set of production-tested software, proactive monitoring tools, and premium support services available in an affordable annual subscription. MySQL is a key part of LAMP (Linux, Apache, MySQL, PHP / Perl / Python), the fast-growing open source enterprise software stack. More and more companies are using LAMP as an alternative to expensive proprietary software stacks because of its lower cost and freedom fromplatform lock-in. MySQL was originally founded and developed in Sweden by two Swedes and a Finn: David Axmark, Allan Larsson and Michael "Monty" Widenius, who had worked together since the 1980's. MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.

MySQL is a database management system. A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications.

MySQL databases are relational. A relational database stores data in separate tables rather than putting all the data in one big storeroom. The database structures are organized into physical files optimized for speed. The logical model, with objects such as databases, tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one-to one, one-to-many, unique, required or optional, and ―pointers‖ between different tables. The database enforces these rules, so that with a well-designed database, your application never sees inconsistent, duplicate, orphan, outof-date, or missing data.

The SQL part of ―MySQL‖ stands for ―Structured Query Language‖. SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax. SQL is defined by the ANSI/ISO SQL Standard. The SQL standard has been evolving since 1986 and several versions exist. In this manual, ―SQL-92‖ refers to the standard released in 1992, ―SQL:1999 refers to the standard released in 1999, and ―SQL:2003‖ refers to the current version of the standard. We use the phrase ―the SQL standard‖ to mean the current version of the SQL Standard at any time. MySQL software is Open Source. OpenSource means that it is possible for anyone to use and modify the software. Anybody can download the MySQL software from the Internet and use it without paying

anything. If you wish, you may study the source code and change it to suit your needs.

The MySQL software uses the GPL (GNU General Public License), http://www.fsf.org/licenses/,to define what you may and may not do with the software in different situations. If you feel uncomfortable with the GPL need to embed MySQL code into a commercial application, you can buy a commercially licensed version from us. The MySQL Database Server is very fast, reliable, scalable, and easy to use. If that is what you are looking for, you should give it a try. MySQL Server can run comfortably on a desktop or laptop, alongside your other applications, web servers, and so on, requiring little or no attention. If you dedicate an entire machine to MySQL, you can adjust the settings to take advantage of all the memory, CPU power, and I/O capacity available. MySQL can also scale up to clusters of machines, networked together. MySQL Server was originally developed to handle large databases much faster than existing solutions and has been successfully used in highly demanding production environments for several years. Although under constant development, MySQL Server today offers a rich and useful set of functions. Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet. MySQL Server works in client/server or embedded systems. The MySQL Database Software is a client/server system that consists of a multi- threaded SQL server that supports different back ends, several different client programs and libraries, administrative tools, and a wide range of application programming interfaces (APIs). We also provide MySQL Server as an embedded multi-threaded library that you can link into your application to get a smaller, faster, easier-tomanage standalone product. A large amount of contributed MySQL software is available. MySQL Server has a practical set of features developed in close cooperation with our users. It is very likely that your favourite application or language supports the MySQL Database Server.

2.6.1.3. WAMP Server

WAMP Server is a Windows web development environment. It allows you to create web applications with Apache2, PHP and a MySQL database. Alongside, PhPMyAdmin allows you to manage easily your databases. WAMP Server refers to a software stack forthe Microsoft Windows operating system, created by Romain Bourdon and consisting of the Apache web server, Open SSL for SSL support, MySQL database and PHP programming language. WAMP Server is a Web development platform on Windows that allows you to create dynamic Web applications with Apache2, PHP, MySQL and MariaDB. WampServer automatically installs everything you need to intuitively developed Web applications. You will be able to tune your server without even touching its setting files. Best of all, WampServer is available for free (under GPML license) in both 32 and 64 bit versions. Wampserver is not compatible with

Windows XP, SP3, or Windows Server 2003. WAMP Server's functionalities are very complete and easy to use so we won't explain here how to use them.

2.6.1.4. VISUAL STUDIO CODE

Visual Studio (VS) Code is an open-source code editor by Microsoft. It was a free-editor that helps the programmer write code, helps in debugging and corrects the code using the intellisense method. In normal terms, it facilitates users to write the code in an easy manner.

Visual Studio Code was first announced on April 29, 2015, by Microsoft at the 2015 Build conference. A preview build was released shortly there after on November 18, 2015, the source of Visual Studio Code was released under the MIT License, and made available on GitHub. Extension support was also announced.

On April 14, 2016, Visual Studio Code graduated from the public preview stage and was released to the Web. Microsoft has released most of Visual Studio Code's source code on

GitHub under the permissive MIT License, while the releases by Microsoft are proprietary freeware. VS Code can be used with a variety of programming languages, including Java, JavaScript, Go, N ode.js, Python, C++, C, Rust and Fortran. It is based on the Electron framework, which is used to develop Node.js Web applications that run on the Blink layout engine. Visual Studio Code includes basic support for most common programming languages. This basic support includes syntax highlighting, bracket matching, code folding, and configurable snippets. Visual Studio Code includes multiple extensions for FTP, allowing the software to be used as a free alternative for web development. Code can be synced between the editor and the server, without downloading any extra software.

VS Code is available for Windows, Linux, and macOS. Although the editor is relatively lightweight, it includes some powerful features that have made VS Code one of the most popular development environment tools in recent times.

2.6.1.5. Windows 10

Operating System is defined as a program that manages the computer hardware. An operating system can be viewed as a scheduler, where it has resources for which it has charge. Resources include CPU, memory, I/O device and disk space. In another view, the operating system is a new machine. The third view is that operating system is a multiplexer which allows sharing of resources provides protection from interference and provides a level of co-operation between users. This project is developed using Windows 10 as the operating system and supports its latest versions. Windows 10 is a series of personal computer operating systems produced by Microsoft as part of its Windows NT family of operating systems. It is the successor to Windows 8.1, and was released to manufacturing on July 15, 2015, and to retail on July 29, 2015. One of Windows 10's most notable features is support for universal apps. Windows 10 also introduced the Microsoft Edge web browser, a virtual desktop system, a window and desktop management feature called Task View, support for fingerprint and face recognition login, new security features for enterprise environments, and DirectX12. Windows 10 received mostly positive

reviews upon its original release in July 2015. Critics praised Microsoft's decision to provide a desktop-oriented interfacing line with previous versions of Windows, contrasting the tabletoriented approach of 8, although Windows 10's touch-oriented user interface mode was criticized for containing regressions upon the touch-oriented interface of Windows 8. Critics also praised the improvements to Windows 10's bundled software over Windows 8.1, Xbox Live integration, as well as the functionality and capabilities of the Cortana personal assistant and the replacement of Internet Explorer with Microsoft Edge. However, media outlets have been critical of changes to operating system behaviours, including mandatory update installation, privacy concerns over data collection performed by the OS for Microsoft and its partners and the adware-like tactics used to promote the operating system on its release.

2.6.1.6. Microsoft Word

Microsoft Word (or simply Word) is a word processor developed by Microsoft. It was first released on October 25, 1983 under the name Multi-Tool Word for Xenix systems. Subsequent versions were later written for several other platforms including IBM PCs running DOS (1983), Apple Macintosh running the Classic Mac OS (1985), AT&T Unix PC (1985), Atari ST (1988), OS/2 (1989), Microsoft Windows (1989), SCO Unix (1994), and macOS (formerly OS X; 2001). Commercial versions of Word are licensed as a standalone product or as a component of Microsoft Office, Windows RT or the discontinued Microsoft Works suite. Unlike most MS DOS programs at the time, Microsoft Word was designed to be used with a mouse.

Advertisements depicted the Microsoft Mouse, and described Word as a WYSIWYG, windowed word processor with the ability to undo and display bold, italic, and underlined text, although it could not render fonts. It was not initially popular, since its user interface was different from the leading word processor at the time, WordStar. However, Microsoft steadily improved the product, releasing versions 2.0 through 5.0 over the next six years. In 1985, Microsoft ported Word to the classic Mac OS (known as Macintosh System

Software at the time). This was made easier by Word for DOS having been designed for use with highresolution displays and laser printers, even though none were yet available to the general public. Following the precedents of LisaWrite and MacWrite, Word for Mac OS added true

WYSIWYG features. It fulfilled a need for a word processor that was more capable than MacWrite. After its release, Word for Mac OS's sales were higher than its MS-DOS Counterpart for at least four years

2.6.1.7. SmartDraw

SmartDraw is a diagram tool used to make flowcharts, organization charts, mind maps, project charts, and other business visuals. SmartDraw has two versions: an online edition and a downloadable edition for Windows desktop SmartDraw integrates with Microsoft Office products including Word, PowerPoint, and Excel and G Suite applications like Google Docs and Google Sheets. SmartDraw has apps for Atlassian's Confluence, Jira, and Trello. SmartDraw is compatible with Google Drive, Dropbox, Box, and One Drive.

Since 1994, the mission of SmartDraw Software has been to expand the ways in which people communicate so that we can clearly understand each other, make informed decisions, and work together to improve our businesses and the world. We accomplish this by creating software and services that make it possible for people to capture and present information as visuals, while being a pleasure to use. In 2019, we took this to the next level by launching Visual Script, which makes it easy to visualize data in relational formats like trees, flows, and timelines, automatically, without any human input. Visual Script is a relationship visualization platform that empowers organizations to visualize data across siloed ecosystems and gain critical insights in real-time. Today, Smart Draw Software is one of the most sophisticated digital marketing organizations in the world with over 90,000 unique visitors to our website each business day and in excess of 3,000,000 installations of our apps each year. Smart Draw is used by more than half of the Fortune 500 and by over 250,000 public and private enterprises of all sizes around the world. Privately held, Smart Draw Software is headquartered in San Diego, California.

2.6.2 Hardware requirements

The selection of hardware configuring is a very task related to the software development, particularly inefficient RAM may affect adversely on the speed and corresponding on the efficiency of the entire system. The processor should be powerful to handle all the operations.

The hard disk should have the sufficient to solve the database and the application.

Hardware used for development:

CPU: Intel i5 Processer

Memory: 8 GB

Cache: 6 MB

Hard Disk: 1 TB

Monitor: 15.6" Monitor

Keyboard: Standard 108 keys Enhanced Keyboard

Mouse: Optical Mouse

Minimum Hardware Required For Implementation:

CPU   : Pentium IV Processor

Memory : 256MB Above

Cache : 512 KB Above

Hard Disk: 20 GB Above

Monitor :   Any

Keyboard : Any

Mouse : Any

3. SYSTEM DESIGN

3.1 SYSTEM ARCHITECTURE

A system architecture or system's architecture is the conceptual model that defines the structure, behaviour, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures of the system.

System architecture can comprise system components, the externally visible properties of those components, the relationships (e.g. the behaviour) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture; collectively these are called architecture description languages (ADLs).

The system architecture can best be thought of as a set of representations of an existing (or to be created) system. It is used to convey the informational content of the elements comprising a system, the relationships among those elements, and the rules governing those relationships. The architectural components and set of relationships between these components that architecture describes may consist of hardware, software, documentation, facilities, manual procedures, or roles played by organizations or people. System architecture is primarily concerned with the internal interfaces among the system's components or subsystems, and the interface between the system and its external environment, especially the user.

The structural design reduces complexity, facilitates change and result in easier implementation by encouraging parallel development of different parts of the system. The procedural design transforms structural elements of program architecture into a procedural description of software components. The architectural design considers architecture as the most important functional requirement. The system is based on the three-tier architecture.

The first level is the user interface (presentation logic), which displays controls, receives and validates user input. The second level is the business layer (business logic) where the application specific logic takes place. The third level is the data layer where the application information is stored in files or database. It contains logic about to retrieve and update data.

The important feature about the three-tier design is that information only travels from one level to an adjacent level.

3.2 MODULE DESIGN

Modular programming is a software design technique that emphasizes separating the functionality of a program into independent, interchangeable modules, such that each contains everything necessary to execute only one aspect of the desired functionality. Conceptually, modules represent a separation of concerns, and improve maintainability by enforcing logical boundaries between components.

Different modules in the project includes:

1. User Authentication

The user authentication module allows the user to login to the system using a username and a password. There is no limit for the number of characters for the username. But a username but be some words that cannot be easily guessed by someone. This is also the same case as in the case of a password. After logging in to the system the user can view his/her information. If he/she wishes can update his/her details.

Administrator login

This sub module of the user authentication allows the administrator to login to the system using a username and a password. Once the administrator has logged in to the system he has the provision to view and maintain all the details. The administrator can change his password anytime when he seems there in some insecurity in his password.

Customer login

This sub module of the user authentication allows the customer who had registered online, to login to the system using a valid username and a password. A customer who logged in to the system has the provision to edit his/her details if they wish. They have the provision to sent request for renting tools. This module also allows the customer to pay advance amount through web application itself

2. Registration

This module contains the all registration process in the system. There are many registrations in the system. All registration specified in the system is included for the smooth running of the system. This module includes the registrations that can performed by all stake holders. Admin can register all the details of powertools.The registered details can use by the users and also this module allow user to register to our website. He can use the registration form for registering his account. While registering he needs to provide basic information including Name, phone number, email id, password etc. This will keep inside the database that Admin can use this data.

After registration he can view all the information inside the site. The customers need to register to the system before login into the system. This registered information is helpful to create meaning full information's.

3.Searching and Booking

This module includes the activities that can performed by the stake holders in the system. There are many activities that the stake holders can perform. This makes the system more helpful to the users. Activities include searching,requesting,booking etc…This will also include review of each product,so that customers can choose the best tool for rent.

The system included with different searching like powertools categories and powertools.Also, the customers are able to search about their details. Customers can search the status of the request and booking by searching their

account. This operation will help the system to attract the users. This will improve the standard of the system and attract the customers to rent more tools.

4. Report Generation

This module allows the company to generate various reports using the data in so that he can get a clear idea about the data in the system. The system provides the provision to the shop to get the percentage of customers who has rented powertools in each category. The system also provides the facility to the shop to get the list of the accepted users as well that of the details of the customers whose status is pending. It will also give the list of the consumers who rent tools in a particular month . Moreover that the shop can also print the data he wishes in an excel sheet.

3.3 DATABASE DESIGN

A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The general objective is to make information access easy, quick, inexpensive and flexible for the users. The general theme behind a database is to integrate all information. Database design is recognized as a standard of management information system and is available virtually for every computer system. In database design several specific objectives are considered:

- Ease of learning and use

- Controlled redundancy

- Data independence

- More information at low cost

- Accuracy and integrity

- Recovery from failure

- Privacy and security

- Performance

A database is an integrated collection of data and provides centralized access to the data. Usually the centralized data managing the software is called RDBMS. The main significant difference between RDBMS and other DBMS is the separation of data as seen by the program and data has in direct access to stores device. This is the difference between logical and physical data.

3.3.1 Normalization

Designing a database is complete task and the normalization theory is a useful aid in the design process. The process of normalization is concerned with transformation of conceptual schema into computer representation form. There will be need for most databases to grow by adding new attributes and new relations. The data will be used in new ways. Tuples will be added and deleted. Information stored may undergo updating also. New association may also be added. In such situations the performance of a database is entirely depend upon its design.

A bad database design may lead to certain undesirable things like:

- Repetition of information

- Inability to represent certain information

- Loss of information

To minimize these anomalies, Normalization may be used. If the database is in a normalized form, the data can be growing without, in most cases, forcing the rewriting application programs. This is important because of the excessive and growing cost of maintaining an organization's application programs and its data from the disrupting effects of database growth. As the quality of application programs increases, the cost of maintaining the without

normalization will rise to prohibitive levels. A normalized database can also encompass many related activities of an organization thereby minimizing the need for rewriting the applications of programs. Thus, normalization helps one attain a good database design and there by ensures continued efficiency of database.

Normalization theory is built around the concept of normal forms. A relation is said to be in normal form if it satisfies a certain specified set of constraints. For example, a relation is said to be in first normal form (1NF) if it satisfies the constraint that it contains atomic values only. Thus every normalized relation is in 1NF.Numerous normal forms have been defined. Codd defined the first three normal forms.

All normalized relations are in 1NF, some 1NF relations are also in 2NF and some 2NF relations are also in 3NF.2NF relations are more desirable than 1Nf and 3NF are more desirable than 2NF. That is, the database designer should prefer 3NF than 1NF or 2NF.Normalization procedure states that a relation that is in some given normal form can be converted into a set of relations in a more desirable form. We can define this procedure as the successive reduction of a given collection of relations to some more desirable form. This procedure is reversible. That is, it is always possible to take the output from the procedure and convert them back into input.

In this process, no information is lost. So it is also called "no loss decomposition".

First Normal Form

A relation is in first normal form (1NF) if and all its attributes are based on single domain. The objective of normalizing a table is to remove its repeating groups and ensure that all entries of the resulting table have at most single value.

Second Normal Form

A table is said to be second Normal Form (2NF), when it is in 1NF and every attribute in record is functionally dependent upon the whole key, and not just a part of the key.

Third Normal Form

A table is in third Normal Form (3NF), when it is in 2NF and every non-key attribute is functionally dependent on just the primary key.

3.3.2 Tables

Data is stored in tables, which is available in the backend the items and data, which are entered in the input, form id directly stored in this table using linking of database. We can link more than one table to input forms. We can collect the details from the different tables to display on the output.

There are mainly 9 tables in the project. They are,

1. tbladminlogin

2. tblcustomerlogin

3. tbldistrict

4. tbllocation

5. tblpowertoolcategory

6. tblpowertool

7. tblpowertoolbooking

8. tblrentdetails

1. 1.Table: **tbladminlogin**

Description: To store the details of admin

<div align="center">Table 3.1 tbladminlogin</div>

Field name	Data type	Constraints	Description
adminid	Integer	Primary Key	Id of admin
username	Varchar(20)	Unique	Unique username of admin
password	Varchar(20)	Not Null	Password of admin

2. Table: **tblcustomerlogin**

Description: To store the details of customer

Table 3.2 tblcustomerlogin

Field name	Data type	Constraints	Description
customerid	Integer	Primary Key	Id of the customer
customername	Varchar(20)	Not Null	Name of the customer
districtid	Integer	Foreign Key	District id of the customer
locationid	Integer	Foreign Key	Location id of the customer
Pincode	Integer		Pincode of the customer
Email	Varchar(30)	Not Null	Email id of the customer
username	Varchar(20)	Unique	Unique username of customer
password	Varchar(20)	Not Null	Password of the customer
contactno	Bigint(10)	Not Null	Phone no of the customer
aadharno	Bigint(12)	Not Null	Aadhar no of the customer

3. Table: **tbldistrict**

Description: To store the details of the district

Table 3.3 tbldistrict

Field name	Data type	Constraints	Description
districtid	Integer	Primary Key	Id of the district
districtname	Varchar(20)	Not Null	Name of the district

4. Table: **tbllocation**

Description: To store the details of location

Table 3.4 tbllocation

Field name	Data type	Constraints	Description
locationid	Integer	Primary Key	Id of the location
locationname	Varchar(20)	Not Null	Name of the location
districtid	Integer	Foreign Key	Id of the district

5. Table: **tblpowertoolcategory**

Description: To store the details of powertool category

Table 3.5 tblpowertoolcategory

Field name	Data type	Constraints	Descripti on
categoryid	Integer	Primary Key	Id of the category
categoryname	Varchar(20)	Not Null	Name of the category
categorydiscription	Varchar(50)	Not Null	Discription of the category

6. Table: **tblpowertool**

Description: To store the details of powertools

Table 3.6 tblpowertool

Field name	Data type	Constraints	Descripti on
powertoolid	Integer	Primary Key	Id of the powertool
powertoolname	Varchar(20)	Not Null	Name of the powertool
powertooldescription	Varchar(50)	Not Null	Description of the powertool
powertoolcategory	Varchar(20)	Not Null	Type of the powertool
tool_stock	Integer	Not Null	Available stock
powertoolprice	Integer	Not Null	Price of the powertool
powertoolimage	Varchar(20)		Image of the powertool

7. Table: **tblpowertoolbooking**

Description: To store the details at the time of powertool booking

Table 3.8 tblpowertoolbooking

Field name	Data type	Constraints	Descripti on
bookingid	Integer	Primary	Id of booking
customerid	Integer	Foreign Key	Id of the customer
powertoolid	Integer	Foreign Key	Id of the powertool
returndate	Date	Not Null	Date of return
balanceamount	Integer	Not Null	Balance amount to be payed
bookingstatus	Varchar(10)		Paid or partially paid

8. Table: **tblrentdetails**

Description: To store the details of rent

Table 3.9 tblrentdetails

Field name	Data type	Constraints	Descripti on
rentid	Integer	Primary Key	Id of the rent
customerid	Integer	Foreign Key	Id of the customer
powertoolid	Integer	Foreign Key	Id of the powertool
bookingid	Integer	Foreign Key	Id of the booking
fromdate	Date	Not Null	Powertool from-date
todate	Date	Not Null	Powertool to-date
returndate	Date	Not Null	Powertool return-date
adv_amount	Integer	Not Null	Advance amount for powertool
bal_amount	Integer	Not Null	Balance amount for powertool
total_rentamount	Integer	Not Null	Total rent amount
tool_qnty	Integer	Not Null	Quantity of the powertool
description	Varchar(50)	Not Null	Description for rent
rent_status	Varchar(50)		Accepted or rejected

3.3.3.1 Introduction to Data Flow Diagrams

Data Flow Diagram is a network that describes the flow of data and processes that change, or transform, data throughout the system. This network is constructed by use a set of symbols that do not imply a physical implementation. It is a graphical tool for structured analysis of the system requirements. DFD models a system by using external entities from which data flows to a process, which transforms the data and creates, output-data-flows which go to other processes or external entities or files. Data in files may also flow to processes as inputs.

There are various symbols used in a DFD. Bubbles represent the processes. Named arrows indicate the data flow. External entities are represented by rectangles. Entities supplying data are known as sources and those that consume data are called sinks. Data are stored in a data store by a process in the system. Each component in a DFD is labelled with a descriptive name. Process names are further identified with a number.

The Data Flow Diagram shows the logical flow of a system and defines the boundaries of the system. For a candidate system, it describes the input (source), outputs (destination), database (files) and procedures (data flow), all in a format that meet the user's requirements.

The main merit of DFD is that it can provide an overview of system requirements, what data a system would process, what transformations of data are done, what files are used, and where the results flow.
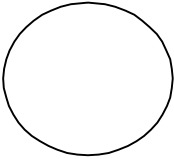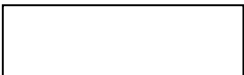
This network is constructed by use a set of symbols that do not imply a physical implementation. It is a graphical tool for structured analysis of the system requirements. DFD models a system by using external entities from which data flows to a process, which transforms the data and creates, output-data-flows which go to other processes or external entities or files. External entities are represented by rectangles. Entities supplying data are known as sources and those that consume data are called sinks. Data are stored in a data store by a process in the system. It is a graphical tool for structured analysis of the system

requirements. DFD models a system by using external entities from which data flows to a process, which transforms the data and creates, output-data-flows which go to other processes or external entities or files. Data in files may also flow to processes as inputs.

Rules for constructing a Data Flow Diagram

1. Arrows should not cross each other

2. Squares, circles and files must bear names.

3. Decomposed data flow squares and circles can have same time

4. Choose meaningful names for data flow

5. Draw all data flows around the outside of the diagram

Basic Flow Data Diagrams

	A data flow is a route, which enables packets of data to travel from one point to another. Data may flow from a source to a process and from data store or process. An arrow line depicts the flow, with arrow head pointing in the direction of the flow.
	Circles stands for process that converts data in to information. A process represents transformation where incoming data flows are changed into outgoing data flows.
	A data store is a repository of data that is to be stored for use by a one or more process may be as simple as buffer or queue or sophisticated as relational database. They should have clear names. If a process merely uses the content of store and does not alter it, the arrowhead goes only from the store to the process. If a process alters the details in the store then a double-headed arrow is used.
	A source or sink is a person or part of an organization, which enters or receives information from the system, but is considered to be outside the contest of data flow model.

3.3.3.2 Data Flow Diagram

Each component in a DFD is labelled with a descriptive name. Process name are further identified with number. Context level DFD is draw first. Then the process is decomposed into several elementary levels and is represented in the order of importance. A DFD describes what data flow (logical) rather than how they are processed, so it does not depend on hardware, software, and data structure or file organization. A DFD methodology is quite effective; especially when the required design.

Zeroth level DFD for Power Tools Management System

Fig 3.1 Zeroth level DFD for Power Tools Management System

First level DFD for Power Tools Management System
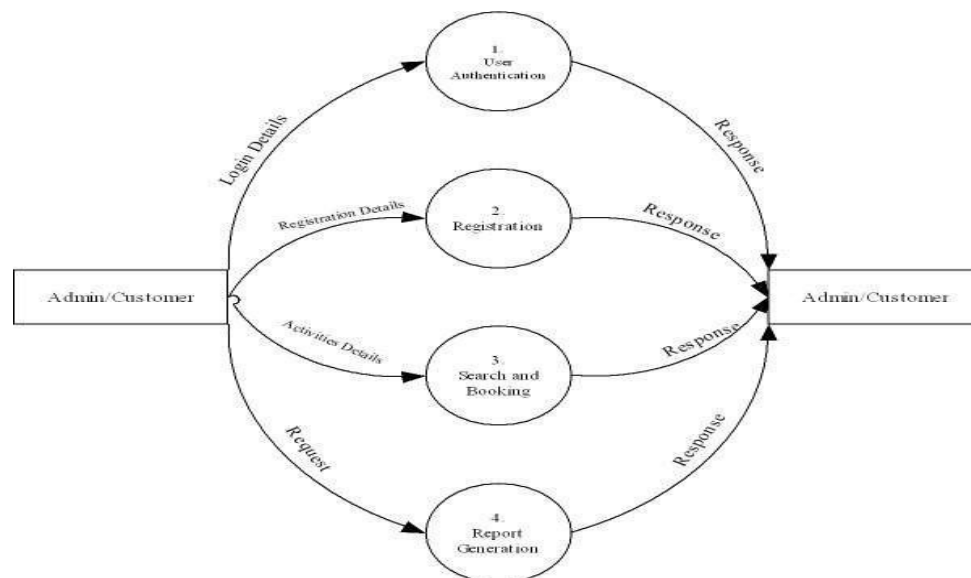
Fig 3.2 1st level DFD for Power Tools Management System

Second level DFD for Authentications
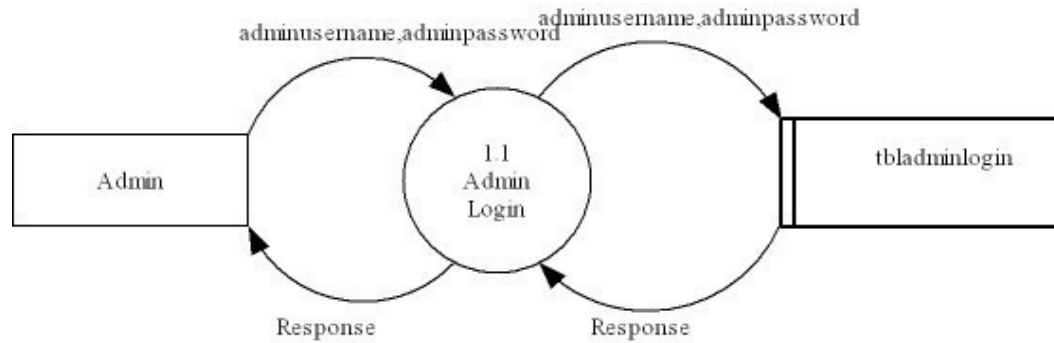
Fig. 3.3 2nd level DFD for Admin Login
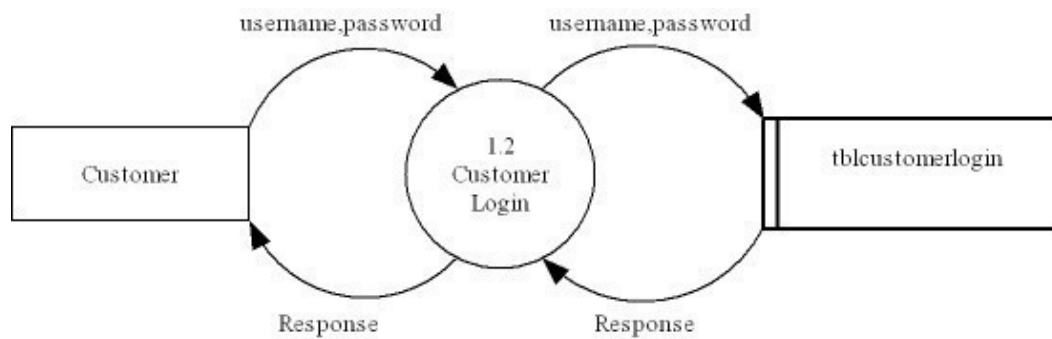
Fig. 3.4 2nd level DFD for Customer Login

Second level DFD for Registration
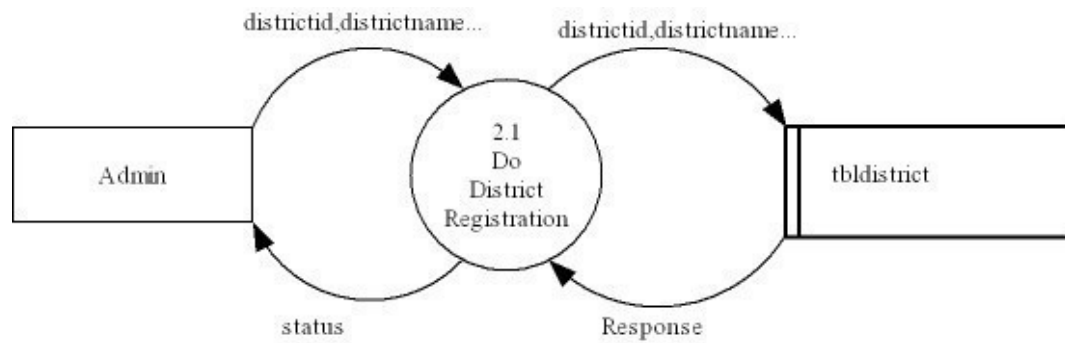
Fig. 3.5 2nd level DFD for District Registration
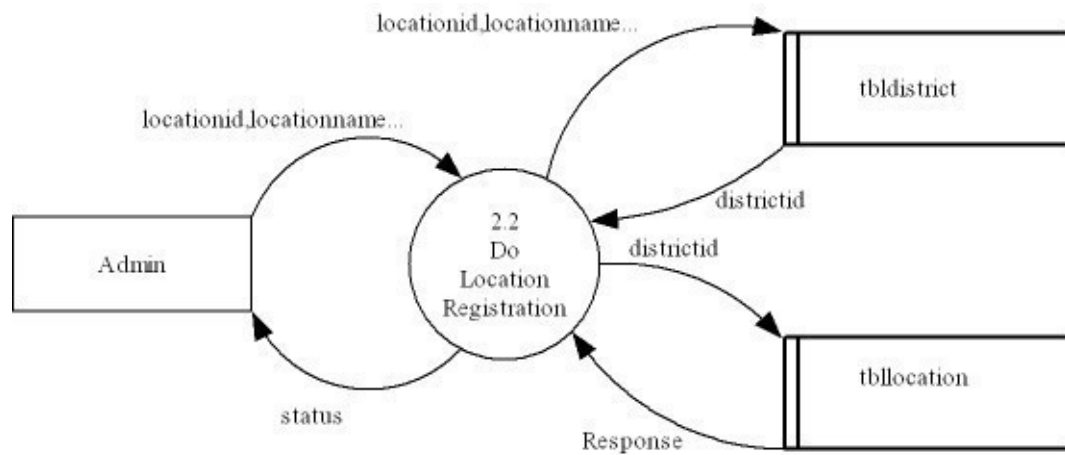
Fig. 3.6 2nd level DFD for Location Registration
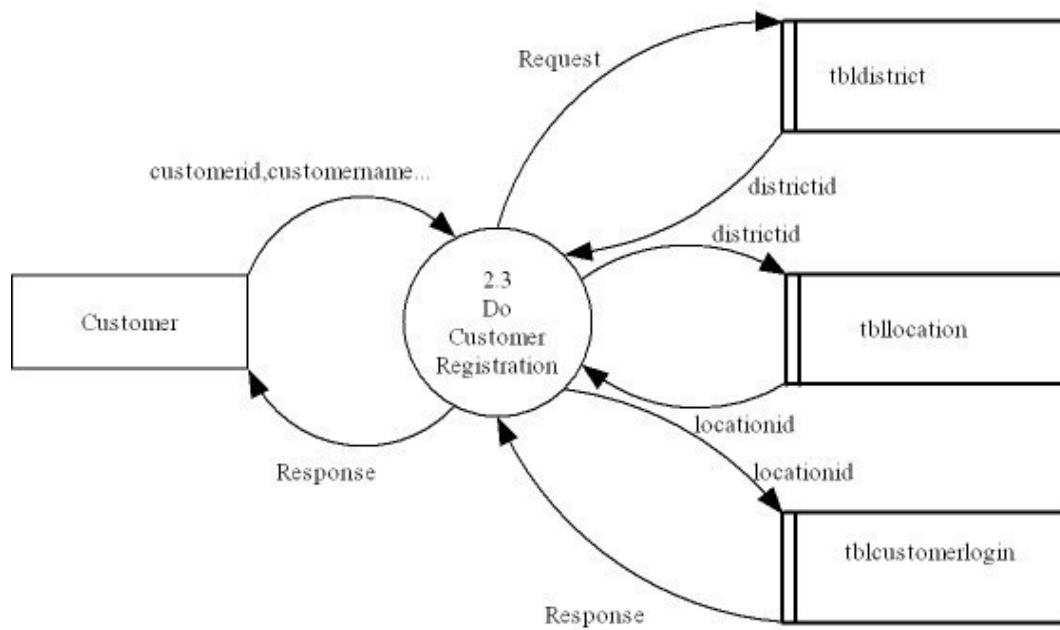
Fig. 3.7 2ⁿᵈ level DFD for Customer Registration
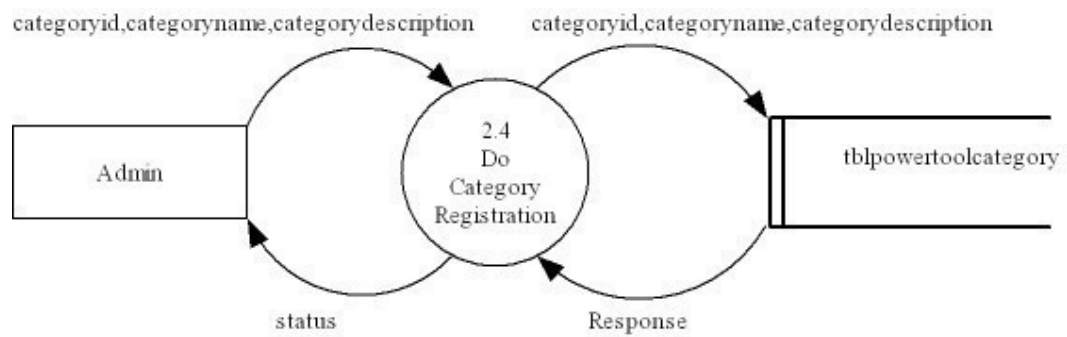
Fig. 3.8 2ⁿᵈ level DFD for Category Registration

powertoolid,powertoolname...   powertoolid,powertoolname...
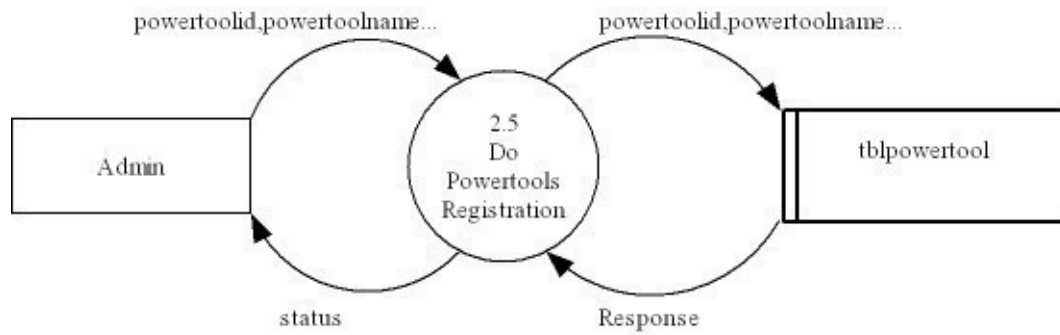
Fig. 3.9 2nd level DFD for Power Tools Registration

Second level DFD for Searching and Booking
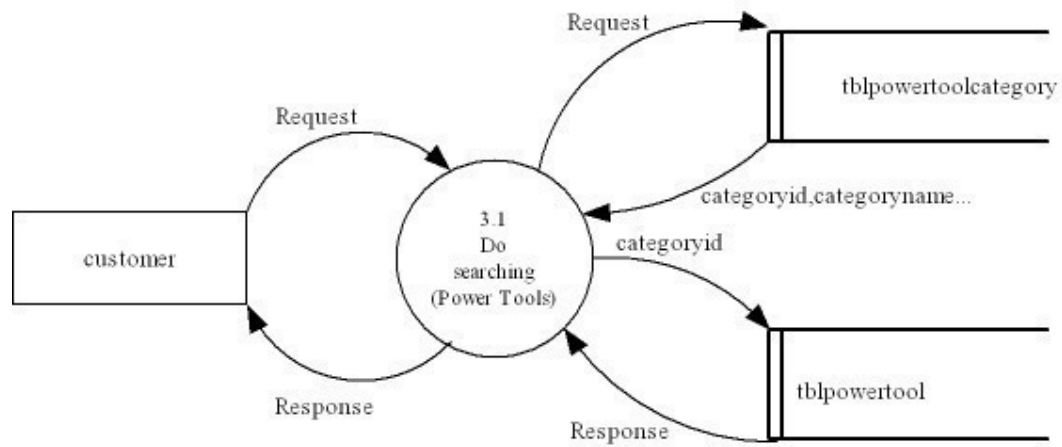
Fig. 3.10 2nd level DFD for searching (Power Tools)
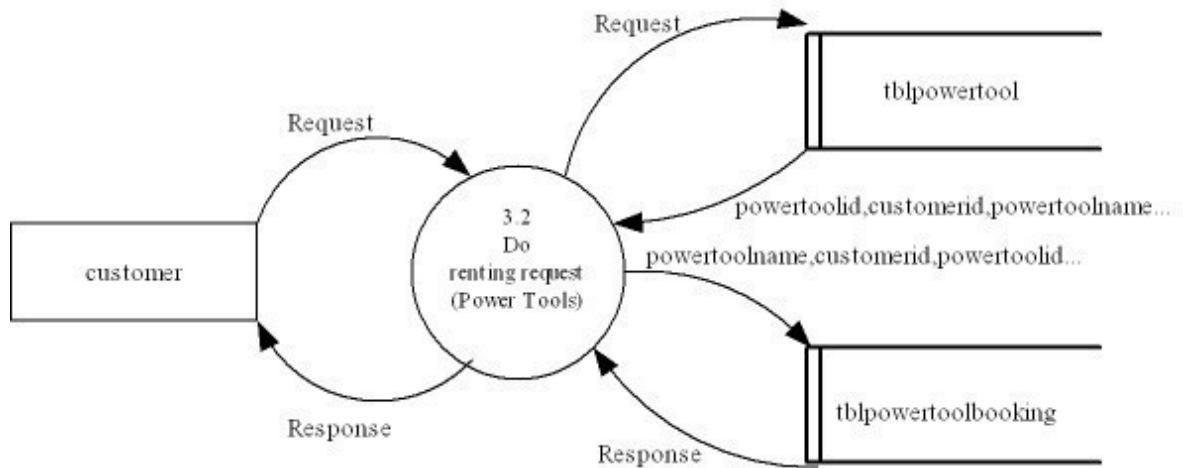
Fig. 3.11 2nd level DFD for renting request (Power Tools)
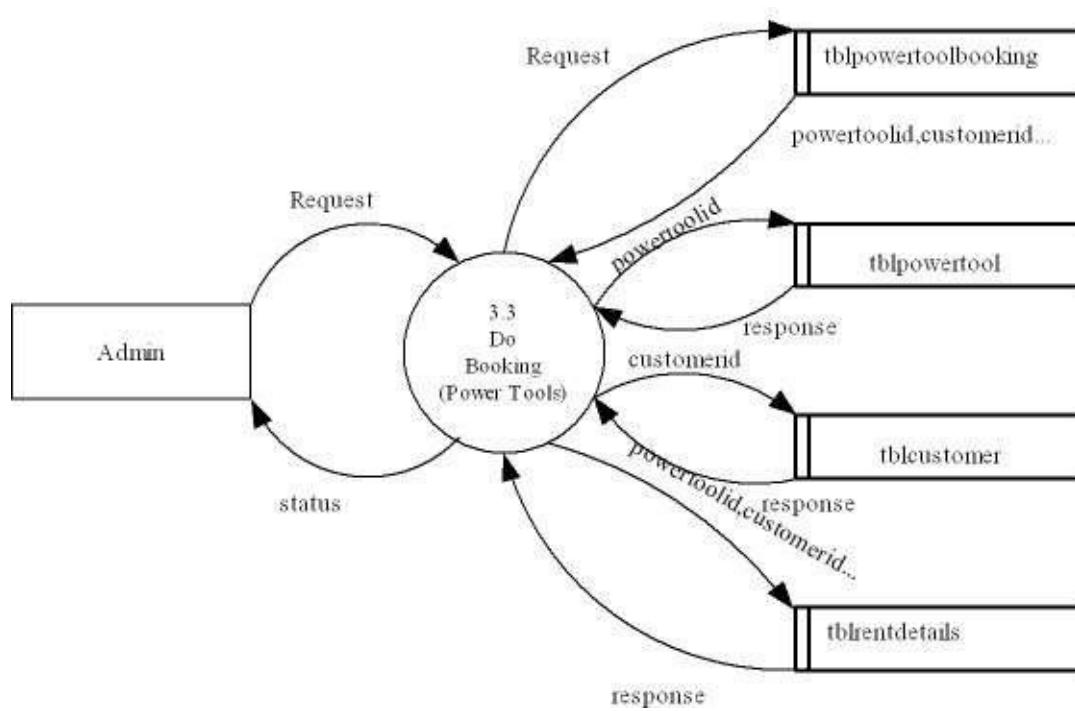
Fig. 3.12 2nd level DFD for Booking(Power Tools)

Second level DFD for Generate Report
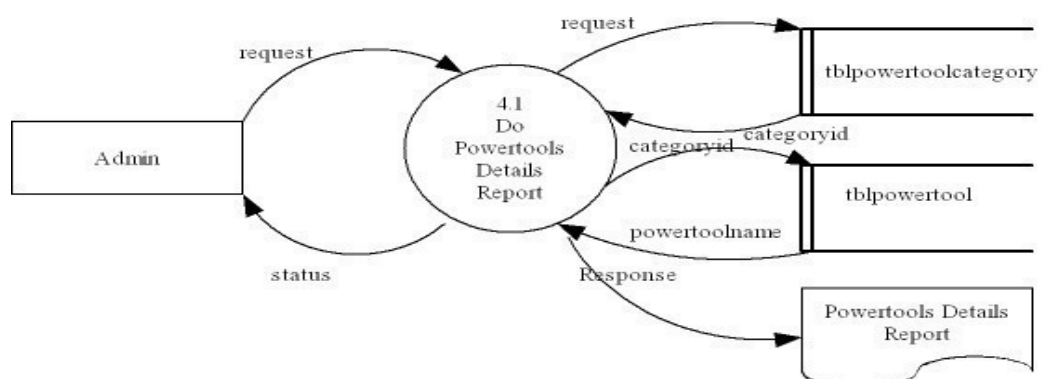
Fig. 3.13 2nd level DFD for Generating Powertools Details Report
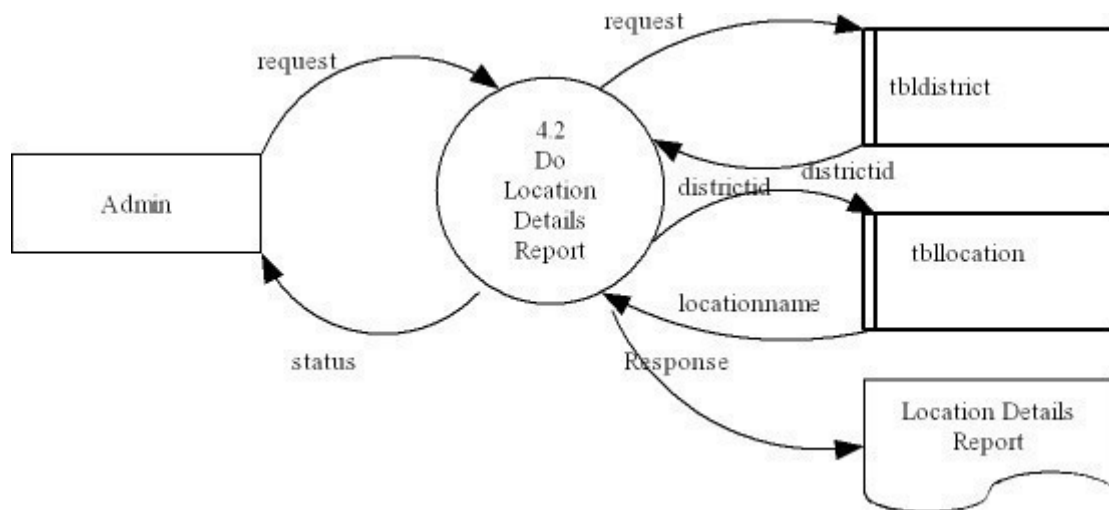
Fig. 3.14 2nd level DFD for Generating Location Details Report
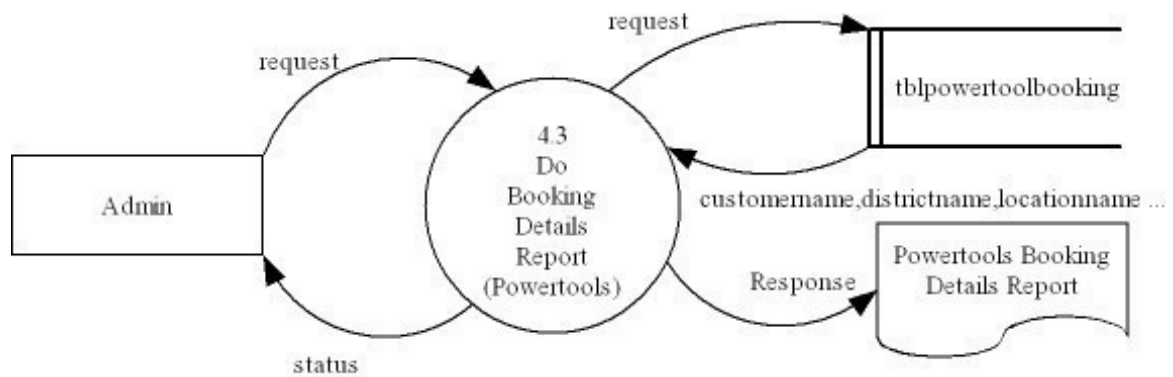
Fig. 3.15 2nd level DFD for Generating Customers Booking Details Report
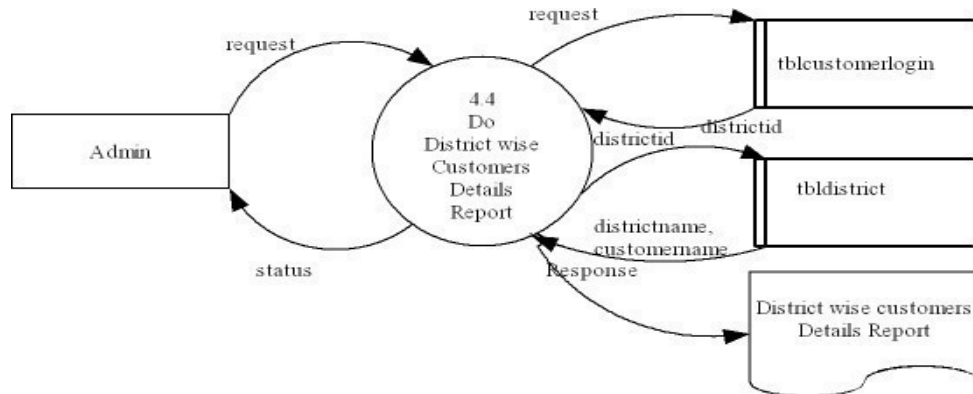
Fig. 3.16 2nd level DFD for Generating District wise customers Details Report
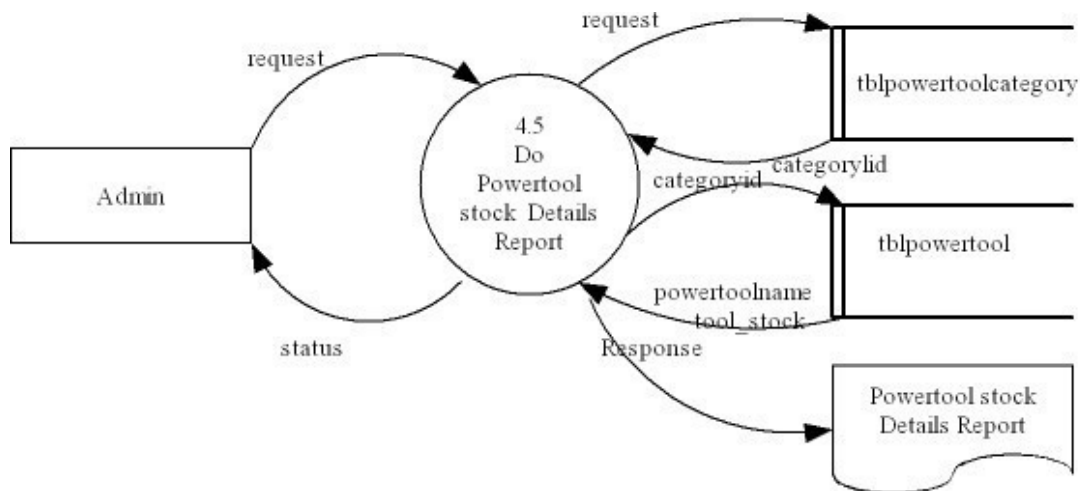
Fig. 3.17 2nd level DFD for Powertool rating Details Report

3.4 INTERFACE DESIGN

These modules can apply to hardware, software or the interface between a user and a machine. An example of a user interface could include a GUI, a control panel for a nuclear power plant, or even the cockpit of an aircraft. In systems engineering, all the inputs and outputs of a system, subsystem, and its components are listed in an interface control document often as part of the requirements of the engineering project. The development of a user interface is a unique field.

3.4.1 User Interface Screen Design

The user interface design is very important for any application. The interface design describes how the software communicates within itself, to system that interpreted with it and with humans who use it. The input design is the process of converting the user-oriented inputs into the computer

based format. The data is fed into the system using simple inactive forms. The forms have been supplied with messages so that the user can enter data without facing any difficulty. They data is validated wherever it requires in the project. This ensures that only the correct data have been incorporated into system. The goal of designing input data is to make the automation as easy and free from errors as possible. For providing a good input design for the application easy data input and selection features are adopted. The input design requirements such as user friendliness, consistent format and interactive dialogue for giving the right messages and help for the user at right are also considered for development for thisproject.

Input Design is a part of the overall design. The input methods can be broadly classified into batch and online. Internal controls must be established for monitoring the number of inputs and for ensuring that the data are valid. The basic steps involved in input design are:

- Review input requirements.
- Decide how the input data flow will beimplemented.
- Decide the source document.
- Prototype on line input screens.
- Design the input screens.

The quality of the system input determines the quality of the system output. Input specifications describe the manner in which data enter the system for processing. Input design features can ensure the reliability of the system and produce results from accurate data. The input design also determines whether the user can interact efficiently with the system.

These is a sample input forms:
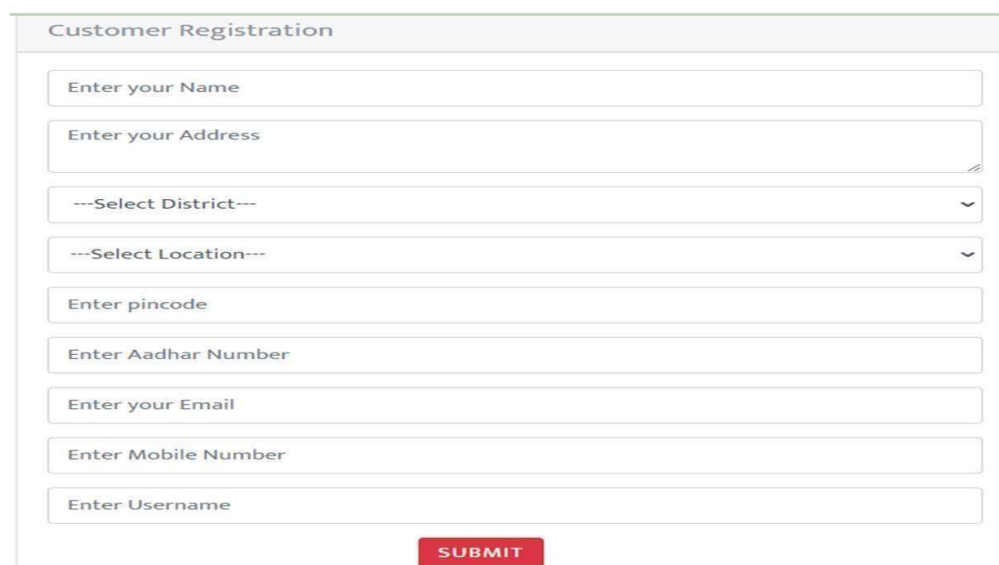
Fig 3.41 Customer registration form

This input form is for the registration of new user. It contains textboxes for inputting Full Name, Address, Pincode, Aadhar Number, Email, Contact Number and Username. This form allows the user to select District and Location through dropdown selection. After clicking the Submit button the user will get a registration successful mail and the password is automatically provided to the user through mail and the user can login to our website using the email id and password. The user registration form is very important in the project. This allows the user to enter their details and register in the system before login in to the system. This helpful for the users to prove their credential. Each user must have to fill the full details that are given in the form to register into the system and log in to it. Each field have its own label that denotes the value need to enter in that box. Also each textbox have placeholders which helpful for the user to decide the type of value which need to enter in the box. The form also has a button that allows the user to pass the contents entered in the form to the database table. The data entered in the form should be correct according to the type of that field. All labels are arranged in the same alignment line and all boxes to enter values are also in the same line.

3.4.2 Output Design

A quality output is one, which meets the requirements of end user and presents the information clearly. In any system result of processing are communicated to the user and to the other system through outputs. In the output design it is determined how the information is to be displayed for immediate need.

It is the most important and direct source information is to the user. Efficient and intelligent output design improves the system's relationships with the user and helps in decision -making. The objective of the output design is to convey the information of all the past activities, current status and to emphasis important events. The output generally refers to the results and information that is generated from the system. Outputs from computers are required primarily to communicate the results of processing to the users.

Output also provides a means of storage by copying the results for later reference in consultation. There is a chance that some of the end users will not actually operate the input data or information through workstations, but will see the output from the system.

Two phases of the output design are:

1.   Output Definition
2.   Output Specification

Output Definition takes into account the type of output contents, its frequency and its volume, the appropriate output media is determined for output. Once the media is chosen, the detail
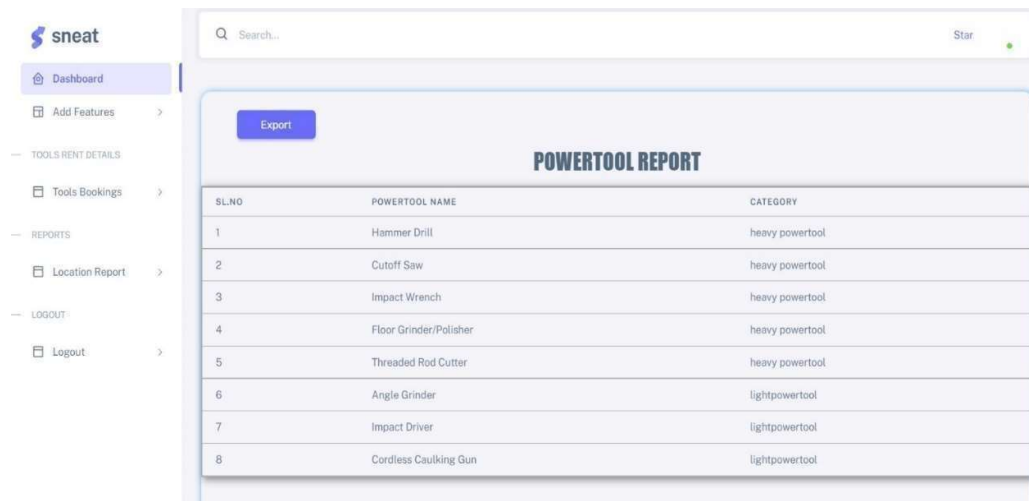
specification of output documents are carried out. The nature of output required from the proposed system is determined during logical design stage. It takes the outline of the output from the logical design and produces output as specified during the logical design phase.

In a project, when designing the output, the system analyst must accomplish the following:

- Determine the information to present.
- Decide whether to display, print, speak the information and select the output medium.
- Arrange the information in acceptable format.
- Decide how to distribute the output to the intended receipt.
- Thus by following the above specifications, a high quality output can be generated.

In our projects outputs are generated as Excel files for Powertools names in category wise, Location details in district wise, Renting details of a customer etc…

In our projects outputs are generated as pie charts for the booking count of each powertools by the customers and the district wise pie chart of registered customers.

Fig 3.42 Report for powertools by category wise

Fig 3.43 Report for location by district wise
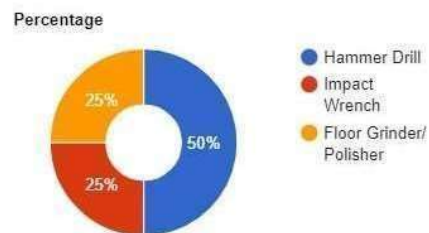
Fig 3.44 Pie chart report for Booking count of each powertools

Fig 3.45 Pie chart report for Booking count of customers in each district

This is a pie chart report which gives the percentage of customers registered from different districts. So it makes easier for the Admin to examine the most number of customers is from which district. Graphical representation easily conveys all details in efficient manner. Here we can see that all the districts have same number of customers. Idukki district has 33.33%, Ernakulum has a percent of 33.33% and kasargod also has 33.33% customers. Idukki district is given in blue color, Ernakulam district is given in red color, and Kasargod district is given in yellow color. These color variation makes it more attractive. The Admin can access this report by just selecting on the "District" option on the "Report" select box in the header.

4. IMPLEMENTATION

Implementation is the stage of the project when the theoretical design is turned into a working system. The implementation stage is a systems project in its own rig ht. It includes careful planning, investigation of current system and its constraints on implementation, design of methods to achieve the changeover, training of the staff in the changeover procedure and evaluation of changeover method

4.1. CODING STANDARDS

PHP follows few rules and maintains its style of coding. As there are many coders and developers all over the world, so each of them can follow different coding styles and standards but this would have raised great confusion and difficulty for a developer to understand another developers code. It would have been hard to manage and store the code for future reference. Here is where the coding standards come into play. This not only makes a code easy to read but also makes the code very easy to refer in the future. This makes the code understandable and clearer to decipher, just like a blueprint. This also makes the code more formal and industry or software oriented. Below mentioned are few guidelines that one must follow in order to maintain the standard of PHP coding.

1. **PHP tags:** One must use the PHP standard tags(), rather than the shorthand tags() to delimit the PHP code.

2. **Commenting:** Use of standard C and C++ commenting style i.e., (//) – for single line and (/* */) – for multi-line, is highly encouraged and use of Python or Perl style of commenting i.e., (#), is discouraged.

3. **Line length and Indentation:** It is a standard recommendation to not exceed more than 75-85 characters per line of code. One must not use tabs for indentation instead use 4 spaces as it is the standard indenting method in most of the programming languages.

4. **Structuring the control flow statements:** The control flow or conditional statements must be written in such a way so that it could be differentiated from function call statements. While writing if, for, while, switch and other control flow statements there must be one space between the keyword and the opening parenthesis.

   Example

   filter_non

   edit

   play_arro

   w

brightness

_4

```php
<?php $n = 5;
if ($n > 0){
echo
"Positive";
} elseif ($n <
0){        echo
"Negative";
}      else{
echo
"Zero";
}

?>
```

Output:

Positive

5. **Function Calls:** While writing a function call statement, there must be no space between the function name and the opening parenthesis. Example:

filter_non

e   edit

play_arro

w

brightness

_4

```php
<?php

echo testFunc(5, 6);

function        testFunc($num1,
$num2) {       $val = $num1 +
$num2;    return $val;
}
```

?>
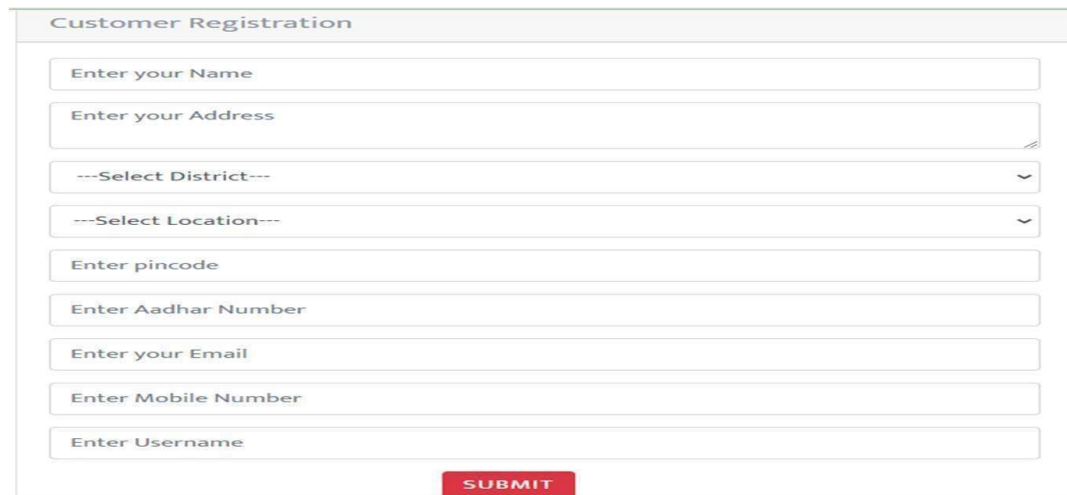
Output:

11

6.   **Naming Variables:** Here are few conventions that one must follow in order to name the variables:

- Use of lower case letters to name the variables.
- Use of '_' to separate the words in a variable.
- Static variable names may be started with a letter 's'.
- Global variable names must start a with letter 'g'.
- Use of upper-case letters to define global constants with '_' as a separator.

7.   **Block alignment:** Every block of code and curly braces must be aligned.

8.   **Short Functions:** All functions and methods must limit themselves to a single page and must not be lengthy.

4.2. SAMPLE CODE

Fig 4.1 Sample code

```php
<?php
include("header.php");
include("config.php");
?>
```

```
<div class="row">
  <div class="col-md-6" id="reg_frm">
    <div class="card mb-4">
      <h5 class="card-header">Customer Registration</h5>
      <!-- Account -->
      <hr class="my-0" />
      <div class="card-body">
        <form id="formAccountSettings" method="POST" action="customerregaction.php"
          enctype="multipart/form-data">
          <div class="row">
            <div class="mb-3 col-md-12">
              <input class="form-control" type="text" name="txtname"
                placeholder="Enter your Name" required="">
            </div><br><br>
            <div class="mb-3 col-md-12">
              <textarea class="form-control" type="text" name="txtaddress"
                placeholder="Enter your Address"    required=""></textarea>
            </div><br><br>
            <div class="mb-3 col-md-12">
            <?php
            include("config.php");
            $sql = mysqli_query($con, "select * from tbldistrict");
```

```
?>

<select id="drpdistrict" name="drpdistrict" onChange="getlocation()"

  class="form-control" required="">

 <option value="0">---Select District---</option>

 <?php

   while ($row = mysqli_fetch_array($sql)) {

 ?>

   <option value="<?php echo $row['districtid'] ?>"> <?php echo $row['districtname']; ?> </option>

  <?php

  }

  ?>

 </Select>

</div>

<div class="mb-3 col-md-12" id="chkboxContainer">

 <select id="drplocation" name="drplocation" class="form-control"

   style="padding-left: 10px;" required="">

  <option value="0">---Select Location---</option>

  <option value="<?php echo $row['locationid'] ?>">

    <?php echo $row['locationname']; ?>  </option>


 </select>

</div>



<div class="mb-3 col-md-12">
```
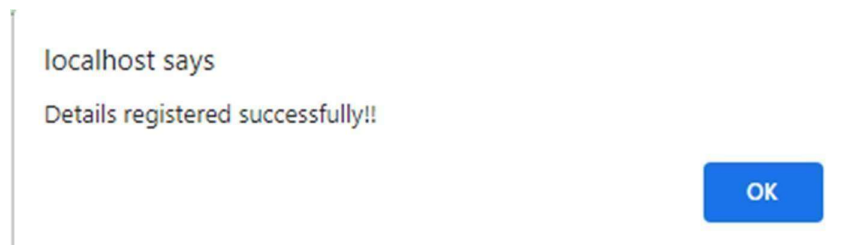
```
   <input class="form-control" type="number" name="txtpincode"

     pattern="[0-9]{6}"  value="686576" required placeholder="Enter pincode" required="">

 </div><br><br>

 <div class="mb-3 col-md-12">

   <input class="form-control" type="number" name="txtaadhar"

     pattern="[0-9]{12}" placeholder="Enter Aadhar Number" required="">

 </div><br><br>


 <div class="mb-3 col-md-12">

   <input class="form-control" type="email" name="txtemail"

     pattern="[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$" title="must enter a valid email address"

     required=" " value="bibin2145@gmail.com" placeholder="Enter your Email" required="">

 </div><br><br>

 <div class="mb-3 col-md-12">

   <input class="form-control" type="number" name="txtphone"

     maxlength="10"  value="9876543210" placeholder="Enter Mobile Number" required="">

 </div><br><br>

 <div class="mb-3 col-md-12">

   <input class="form-control" type="text" name="txtusername"

     pattern="[a-z]{1,15}" required value="abcd" placeholder="Enter Username" required="">

 </div><br><br>
```

```
<input type="submit" style=" margin-left: 260px;text-align:center;"

  class="btn btn-danger deactivate-account" name="submit">

</div>

</form>




</div>

</div>

</div>

</div>

<style>

  @media only screen and (min-width: 768px) {

    #reg_frm {

    margin-left: 23em;

    margin-top: 43px


    }

  }

  </style>

 <script>

  function getlocation() {

   var val = document.getElementById('drpdistrict').value;

   $.ajax({

    type: "POST",

    url: "getlocation.php",

    data: "id=" + val,

    success: function(data) {
```

```
        $("#chkboxContainer").html(data);
      }

    })

  }

</script>

<?php

  include("footer.php");

  ?>
```

5. TESTING

Coding conventions are a set of guidelines for a specific programming language that recommend programming style, practices and methods for each aspect of a piece program written in this language. These conventions usually cover file organization, indentation, comments, declarations, statements, white space, naming conventions, programming practices, programming principles, programming rules of thumb, architectural best practices, etc. These are guidelines for software structural quality. Software programmers are highly recommended to follow these guidelines to help improve the readability of their source code and make software maintenance easier.

5.1   TEST CASES

The objective of system testing is to ensure that all individual programs are working as expected, that the programs link together to meet the requirements specified and to ensure that the computer system and the associated clerical and other procedures work together. The initial phase of system testing is the responsibility of the analyst who determines what conditions are to be tested, generates test data, produced a schedule of expected results, runs the tests and compares the computer produced results with the expected results with the expected results. The analyst may also be involved in procedures testing. When the analyst is satisfied that the system is working properly, he hands it over to the users for testing. The importance of system testing by the user must be stressed. Ultimately it is the user must verify the system and give the go-ahead.

During testing, the system is used experimentally to ensure that the software does not fail, i.e., that it will run according to its specifications and in the way users expect it to. Special test data is input for processing (test plan) and the results are examined to locate unexpected results. A limited number of users may also be allowed to use the system so analysts can see whether they try to use it in unexpected ways. It is preferably to find these surprises before the organization implements the system and depends on it. In many organizations, testing is performed by person other than those who write the original programs. Using persons who do not know how certain parts were designed or programmed ensures more complete and unbiased testing and more reliable software.

Parallel running is often regarded as the final phase of system testing. Since the parallel operation of two systems is very demanding in terms of user resources it should be embarked on only if the user is satisfied with the results of testing -- it should not be started if problems are known to exist. Testing is the major quality control measure during software development. Its basic function is to detect errors in the software. Thus the goal of testing is to uncover requirement design and coding errors in the program.

Testing is the process of correcting a program with intends of finding an error. Different types of testing are,

1. Unit Testing

2. Integrated Testing

3. Black Box Testing

4. White Box Testing

5. Validation Testing

6. User Acceptance Testing

5.1.1   Unit Testing

In computer programming, unit testing is a method by which individual units of source code, sets of one or more computer program modules together with associated control data, usage procedures, and operating procedures are tested to determine if they are fitfor use In this testing we test each module individual and integrated the overall system.Unit testing focuses verification efforts on the smaller unit of software design in the module. This is also known as module testing. The modules of the system are tested separately. The testing is carried out during programming stage itself. In this testing step each module is found to working satisfactory as regard to the expected output fromthe module. There are some validation checks for verifying the data input given by theuser which both the formal and validity of the entered. It is very easy to find error debug thesystem.
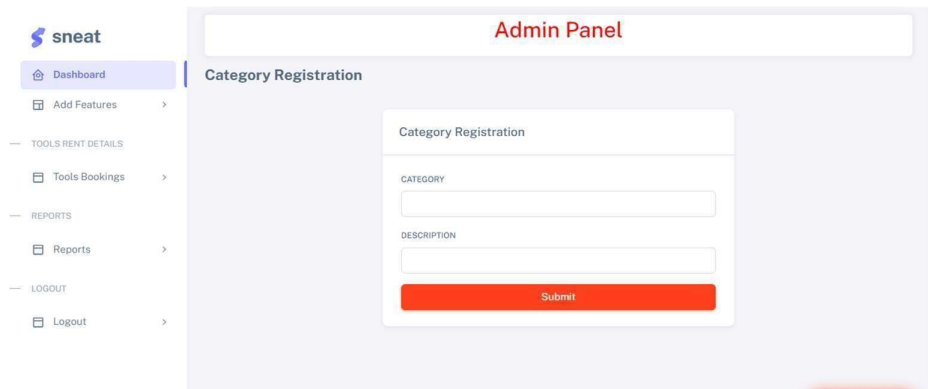
Fig 5.1 Unit Testing

Fig 5.2 Unit Testing Result
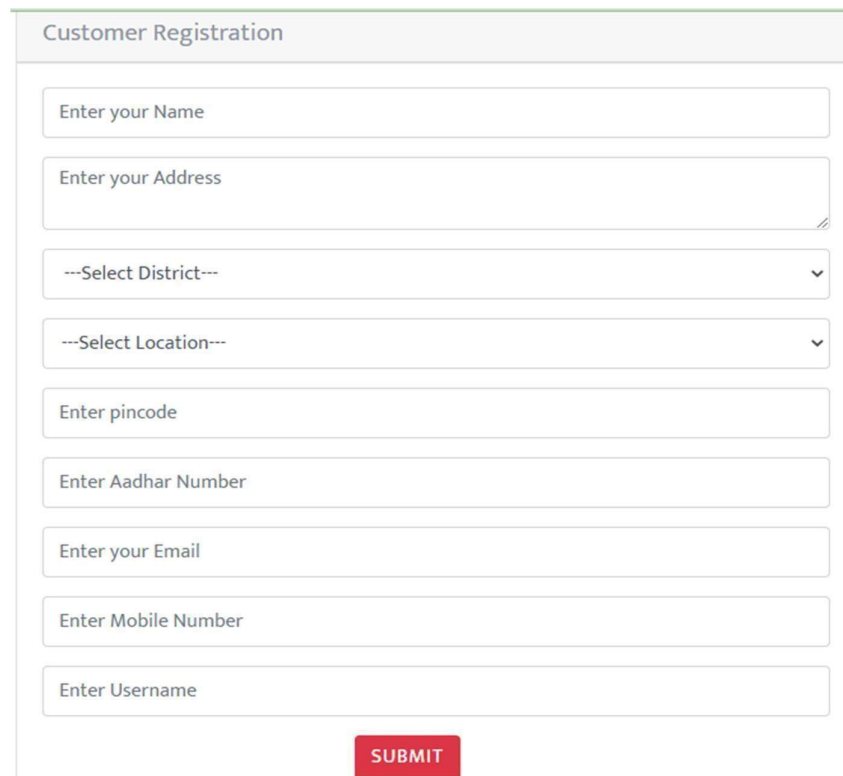
We have continued Unit Testing from the starting of the coding phase itself. Wheneverwe completed one small sub module, some amount of testing was done based on the requirements to see if the functionality is aligned to the gathered requirements.

5.1.2 Integration Testing

Integration testing (sometimes called integration and testing, abbreviated I&T) is the phase in software testing in which individual software modules are combined and tested as a group. Software components may be integrated in an iterative way or all together ("big bang"). Normally the former is considered a better practice since it allows interface issues to be located more quickly and fixed. Data can be lost across an interface; one module can have an adverse effort on the other sub functions when combined by, may not produce the desired major functions.

Integrated testing is the systematic testing for constructing the uncover errors within the interface. This testing was done with sample data. The developed system has run success full for this sample data. The need for integrated test is to find the overall system performance.

Integration testing is a logical extension of unit testing. In its simplest form, two units that have already been tested are combined into a component and the interface between them is tested. A component, in this sense, refers to an integrated aggregate of more than one unit. Integration testing identifies problems that occur when units are combined. By using a test plan that requires you to test each unit and ensure the viability of each before combining units, you know that any errors discovered when combining units are likely related to the interface between units. This method reduces the number of possibilities to a far simpler level of analysis. Progressively larger groups of tested software components corresponding to elements of the architectural design are integrated and tested until the software works as a system.

Fig 5.3 Integration Testing

Fig 5.4 Integration Testing Results

Fig 5.5 Integration Testing Result

We have performed integration testing whenever we have combined two modules together. When two modules are combined we have checked whether the functionalityworks correctly or not through integration testing.

5.1.3 Validation Testing

At the culmination of Black Box testing, software is completely assembled as a package, interface errors have been uncovered and corrected and final series of software tests, Validation tests begins. Validation testing can be defined many was

but a simple definition is that validation succeeds when the software functions in a manner that can be reasonably accepted by the customer. After validation test has been conducted one of the two possible conditions exists.

1. The function or performance characteristics confirm to specification and are accepted.

 2. A derivation from specification uncovered and a deficiency list iscreated

Fig 5.6 Email validation testing
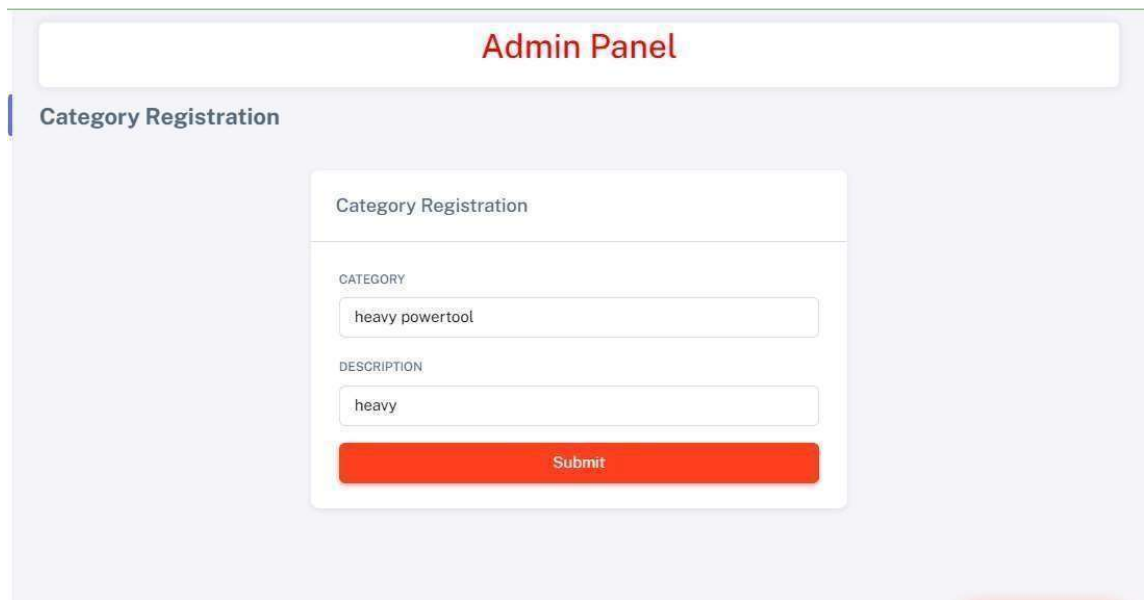
Fig 5.7 Aadhar number Validation testing

Fig 5.8Already Exist Validation Testing
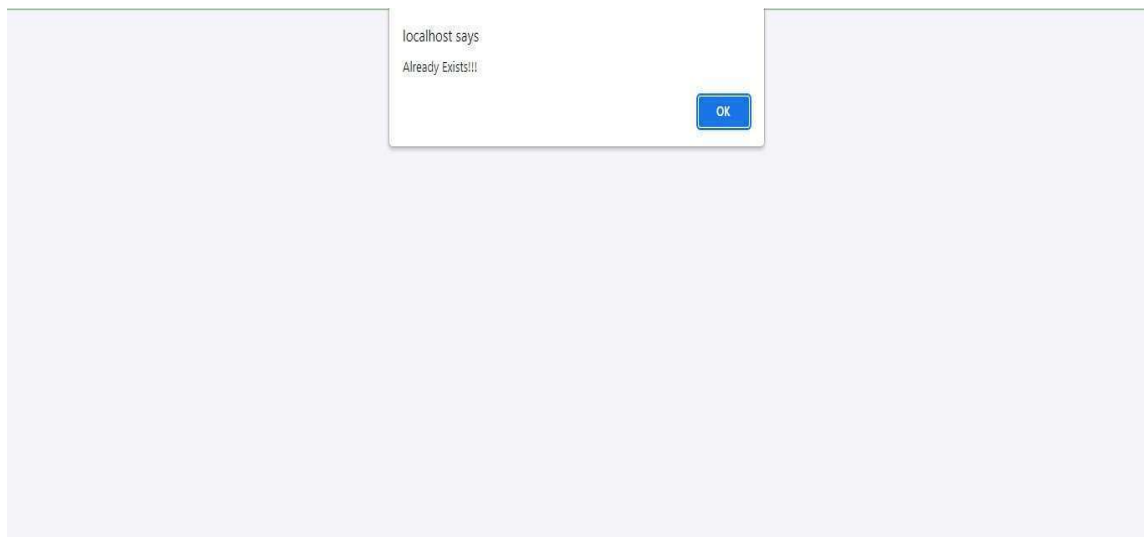
Fig 5.9 Validation Testing Result

5.1.4   User Acceptance Testing

Acceptance Testing is a level of the software testing process where a system is tested for acceptability. User Acceptance testing is the software testing process where system tested for acceptability & validates the end to end business flow. Such type of testing executed by client in separate environment & confirms whether system meets the requirements as per requirement specification or not.

UAT is performed after System Testing is done and all or most of the major defects have been fixed. This testing is to be conducted in the final stage of Software Development Life Cycle (SDLC) prior to system being delivered to a live environment. UAT users or end users are concentrating on end to end scenarios & typically involves running a suite of tests on the completed system.

User Acceptance testing also known as Customer Acceptance testing (CAT), if the system is being built or developed by an external supplier. The CAT or UAT are the final confirmation from the client before the system is ready for production. The business customers are the primary owners of these UAT tests. These tests are created by business customers and articulated in business domain languages. So ideally it is collaboration between business customers, business analysts, testers and developers. It consists of test suites which involve multiple test cases & each test case contains input data (if required) as well as the expected output. The result of test case is either a pass or fail.

5.2   TEST CASE DOCUMENTS

A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. The process of developing test cases can also help find problems in the requirements or design of an application. A sample of test case document format is given below.

Table 5.1 Test Case

TC No.	Test Steps	Expected Result	Actual Result	Status	Comment
1	Run application and navigate to Location Registration screen.	Location registration screen should be displayed. A field for selecting District, Location, Pincode and a button submit should be present.	Location registration screen is displayed. A field for selecting District, Location, Pincode and a button submit should be present.	Pass	

2	Enter the save button without giving District, Location and Pincode	A message should be displayed stating that 'Please fill out this field' in beside of District Dropdown.	A message have been displayed stating that 'Please fill out this field' in beside of District Dropdown.	Pass	
3	Enter the save button after giving value to District and without giving values to Location and Pincode	A message should be displayed stating that 'Please fill out the field' in beside of Location textbox.	A message have been stating that 'Please fill out the field' in beside of Location textbox.	Pass	
4	Enter the save button after giving value to District, Location and without giving values to Pincode	A message should be displayed stating that 'Please fill out the field' in beside of Pincode textbox.	A message have been displayed stating that 'Please fill out the field' in beside of Pincode textbox.	Pass	
5	Enter the save button after select one values from the District Drop select box and give a valid Location and Pincode	A message should be displayed stating that Already Exist	A message have been displayed stating that Already Exist	Pass	
9	After Registration navigate to view location screen	Location Details Screen should be displayed. Registered locations arranged in a table contain fields Slno, District, Location and Pincode	Location Details Screen is displayed. Registered locations arranged in a table contain fields Slno, District, Location and Pincode	Pass	

6. CONCLUSION

The project was successfully completed within the time span allotted. All the moules are tested separately and put together to form the main system. Finally, the modules are tested with real data and it worked successfully. Thus the system has fulfilled the entire objective defined.

This project will help people to rent powertools online.One of the main problem that is faced by the user is to go to the powertool shop to check whether the tools are available or not and sometimes they arent available.The system helps by giving the list of powertools that are available for the user and shows the price too. Thesystem also helps the user by showing the rating and so that the user can understand the quality of that product. For Admin the system help to know about the status of the whole state ofuser's registration and rented tools.The system has completed their main objectivesthat connect the user with the powertools in successful manner. The system is helps tostore all the records of user's in the certain standard format and they can be printed atany time. This system is also useful for inserting and updating the details of users. It isconvenient for users to use the website and rent tools according to their wish.

Hence the system saves time, efforts and cost. Also system faces some challenges. Consumer needs to be at least basic knowledge about the internet. Active involvement of the User and website is needed to the success of the system. But the world is become digital. So it is easy for the User to use the system. The system is also design in a simple way the User can interact.

Users can register and rent the tools according to their wish in near by user's location. The main motive for developing this system is to improve the quality of education ,research,teaching and learning by providing technology enabled learning solution.

6.1. FUTURE ENHANCEMENTS

The system has been designed in such a way that it can be modified with very little effort when such needs arise in the future. New features can be added with slight modifications of software which make it easy to expand the scope of this project.

Though the system is working on various assumptions, it can be modified easily to any kind of requirements. The system is also expected to be improvised by adding various features. Now the system provide information about various powertools and locations available. One of the future enhancement is that the users can search powertools by filtering their requirements, like they can search powertools that is needed to them etc. Another feature we can include is to provide a mobile application to powertools to easily manage request send by various users to rent powertool, The system will be modified to send users SMS notification about the various updates like if the request is accepted and to get notified when new tools are introduced, The

system will be modified to verify the email and the phone number of the user. The system is also expected to be improvised by adding online technical support facility, which is helpful to the users to clear their doubts and to know more about other. It can also be modified by using a payment gateway at registration time so that the admin will get monitory benefits. System shall allow language selection such as Malayalam, English and Hindi.

7. REFERENCES

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8.APPENDIX

8.1 SCREENSHOTS
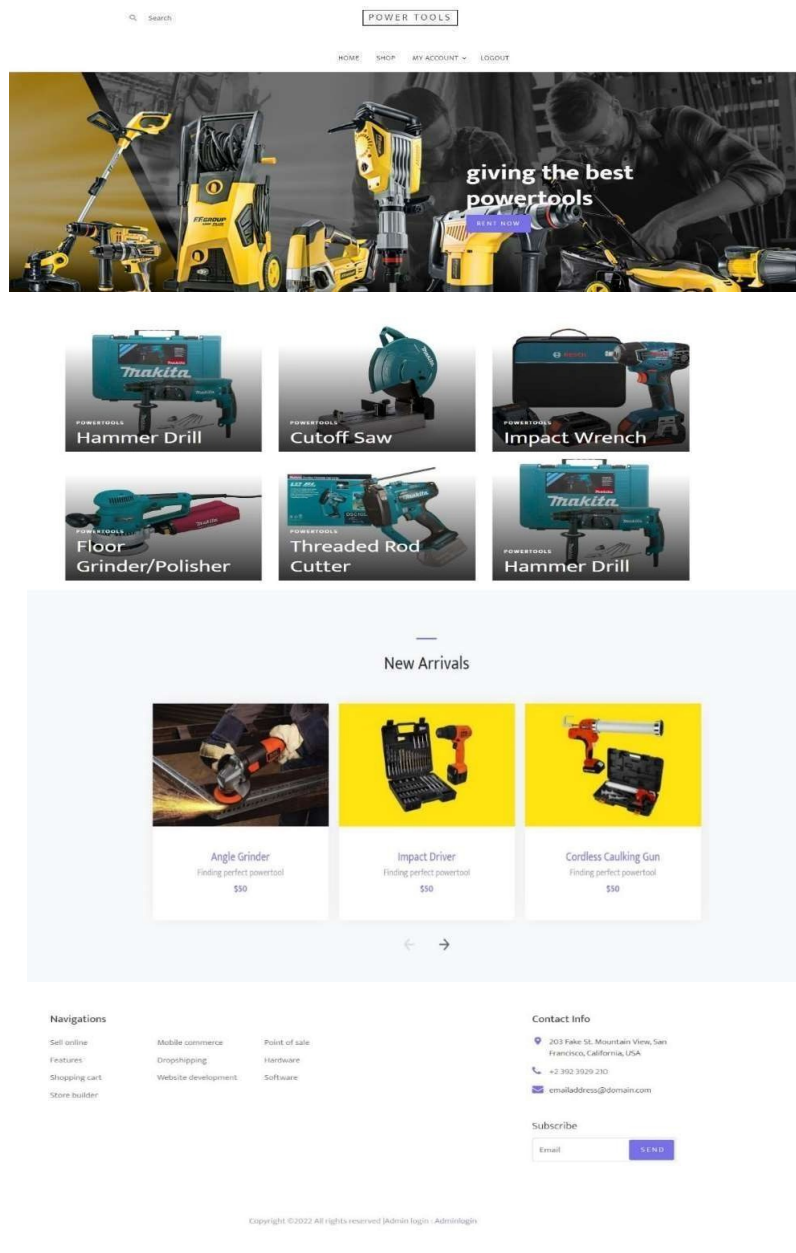
Fig. 8.1.1 Guest Page of Power Tools Management System
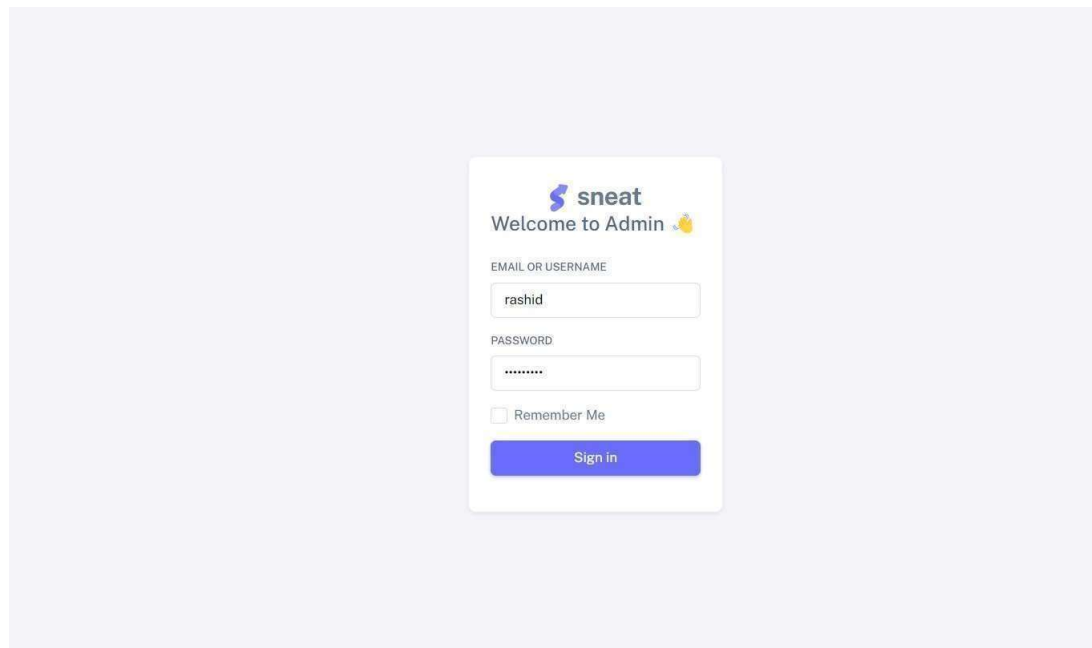
Fig. 8.1.2 Admin Login Page

Fig. 8.1.3 Admin Home Page

Fig. 8.1.4 Category Registration Page
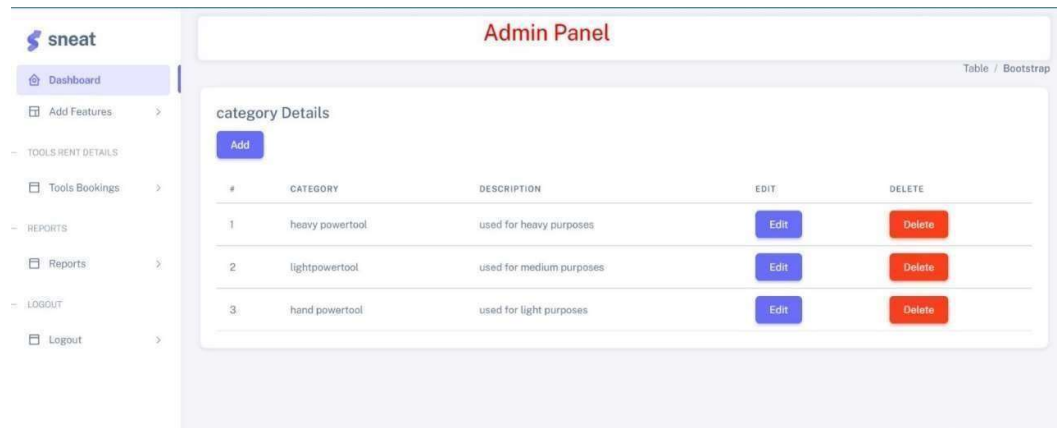
Fig. 8.1.5 Category view Page
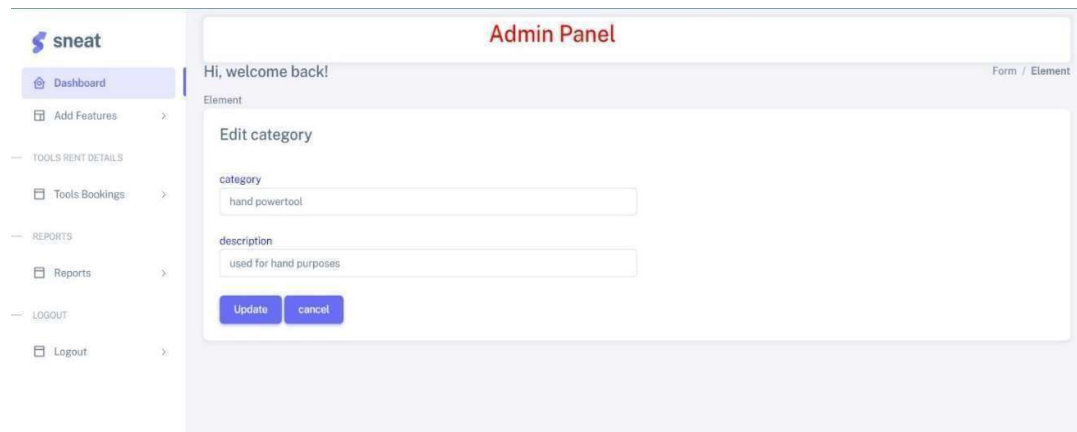
Fig. 8.1.6 Category edit Page
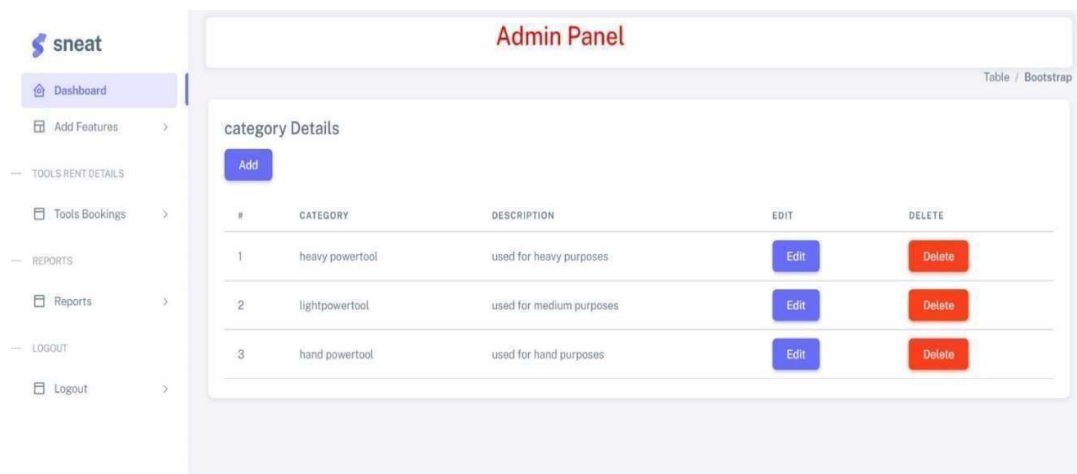
Fig. 8.1.7 Category view Page after editing
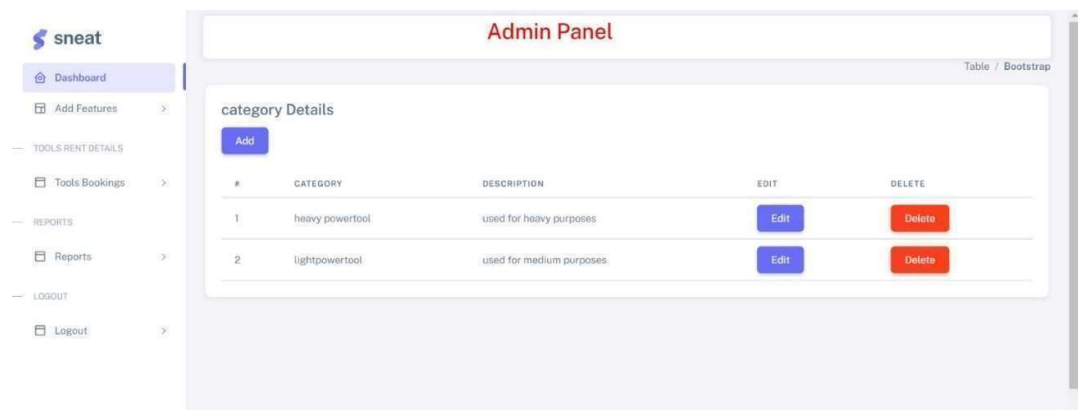
Fig. 8.1.8 Category view Page after deleting
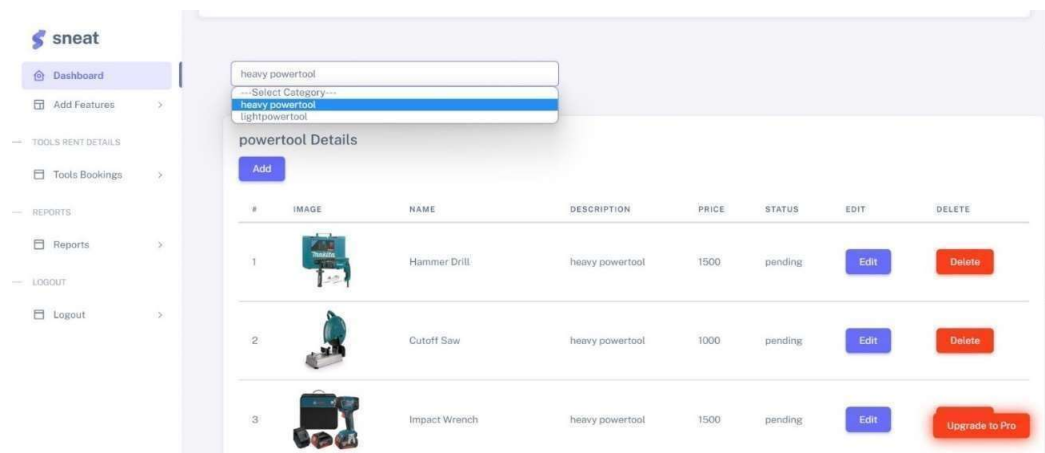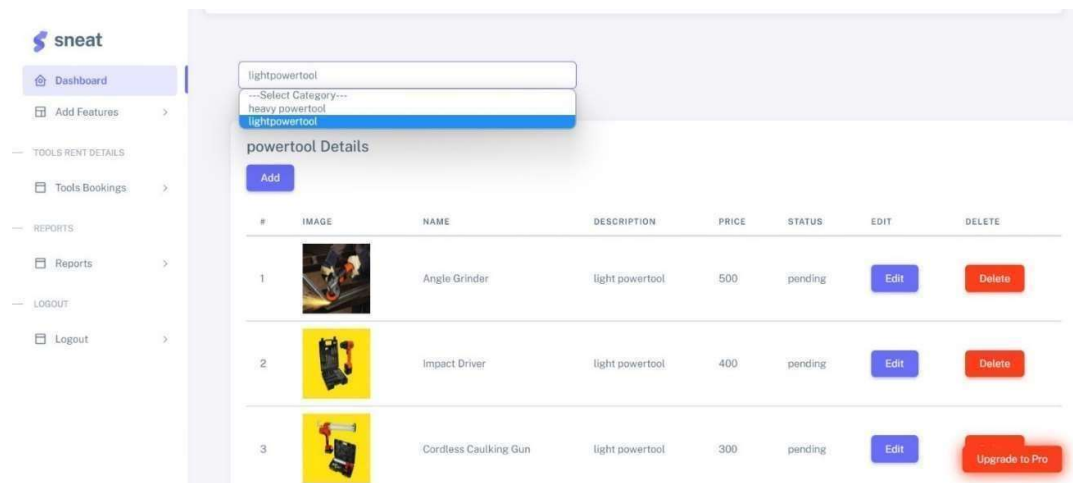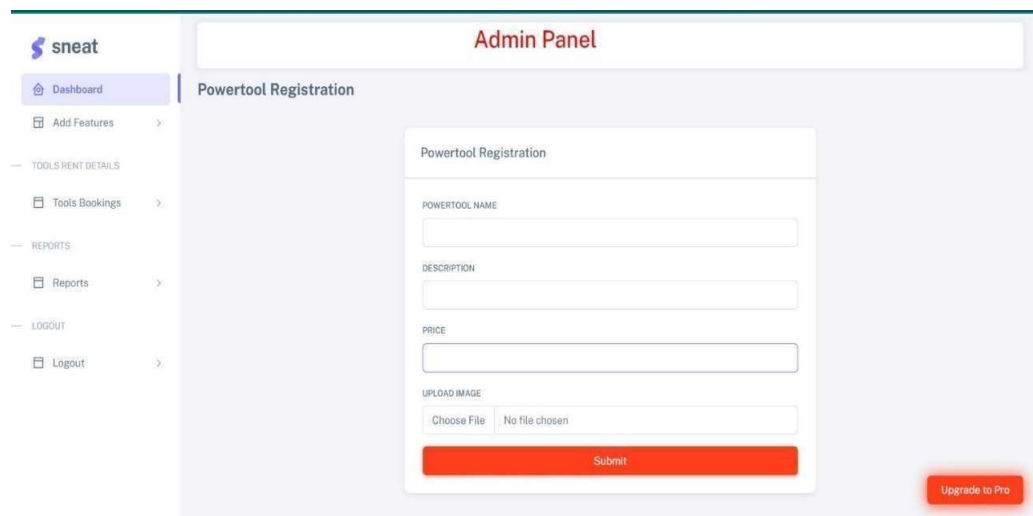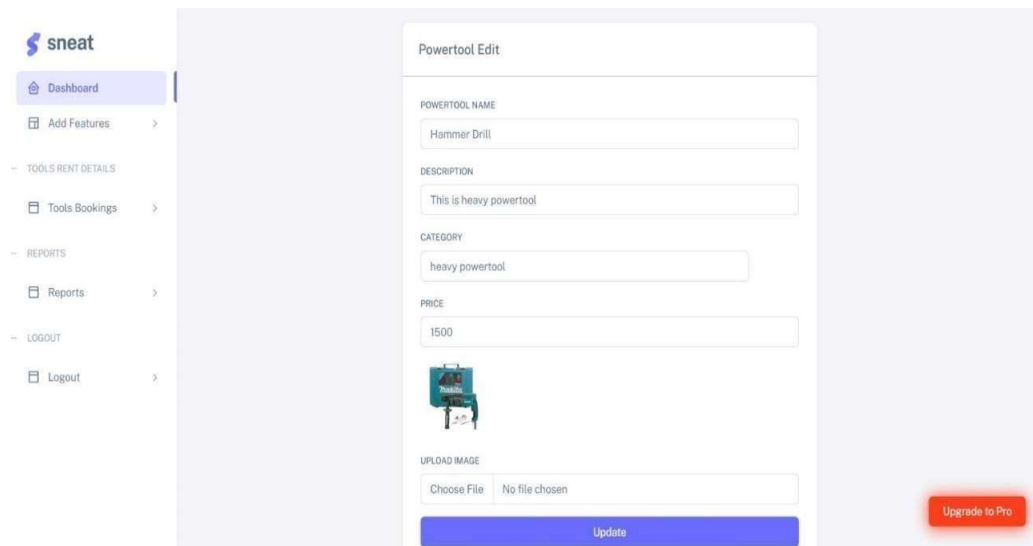
Fig. 8.1.9 Powertools view Page
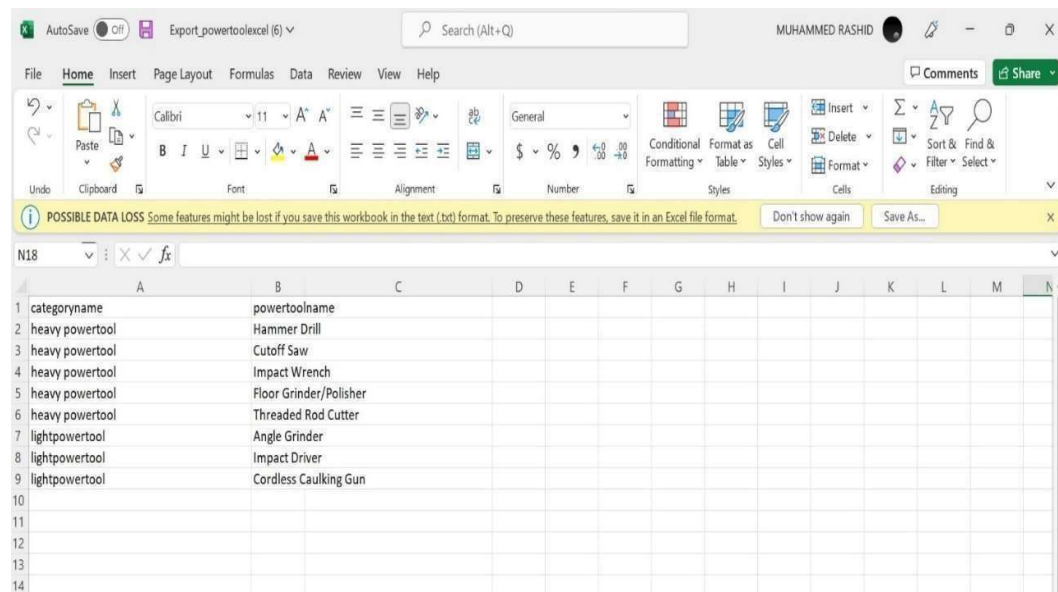
Fig. 8.1.10 Powertools registration Page

Fig. 8.1.11 Powertools edit Page

Fig. 8.1.12 Powertools report Page

Fig. 8.1.13 District view Page
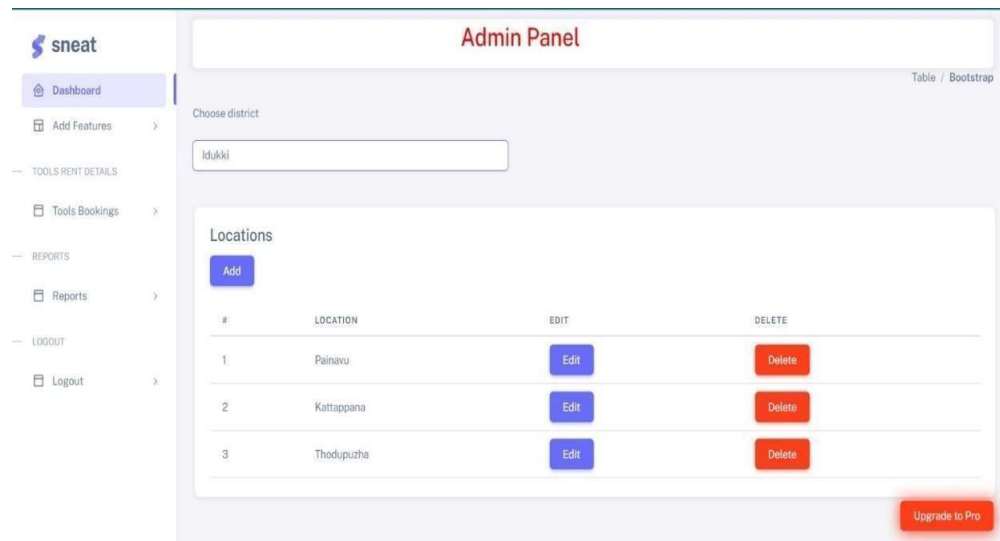
Fig. 8.1.14 Location view Page
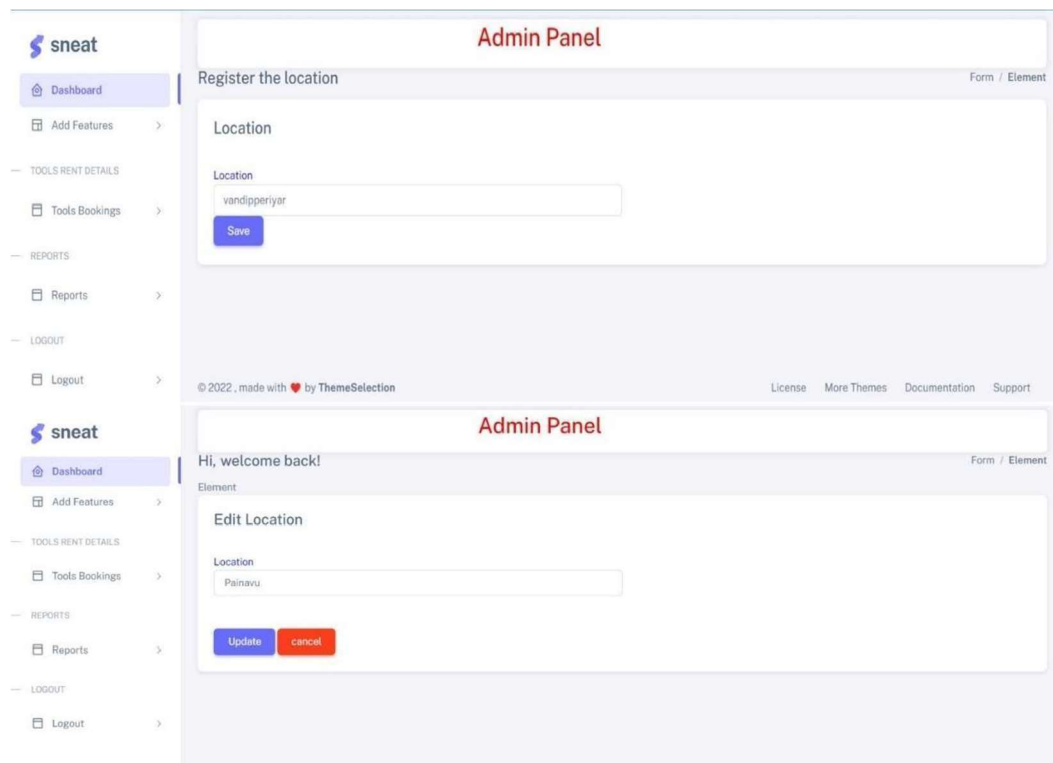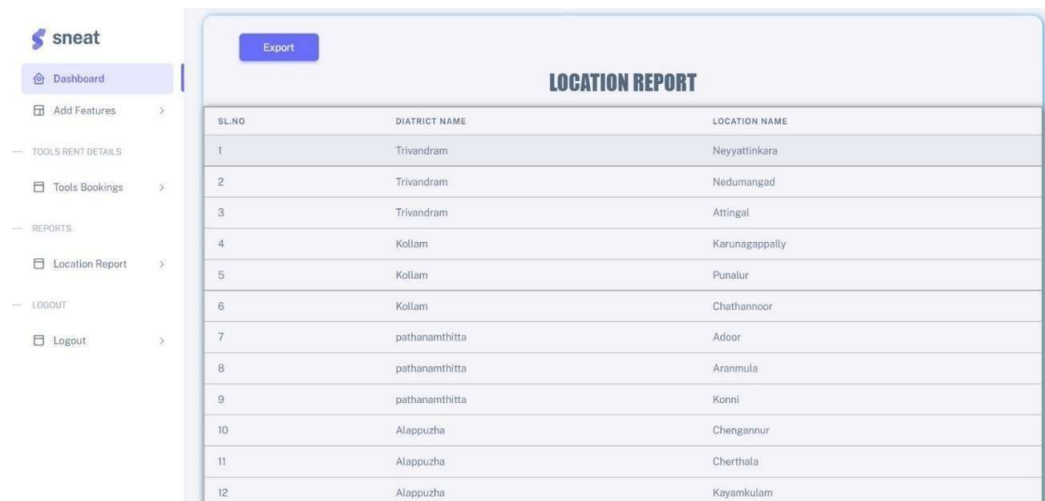
Fig. 8.1.15 Location edit Page

Fig. 8.1.16 Location report Page

Fig. 8.1.17 Powertools booking Page

Fig. 8.1.18 Powertools datewise booking report Page
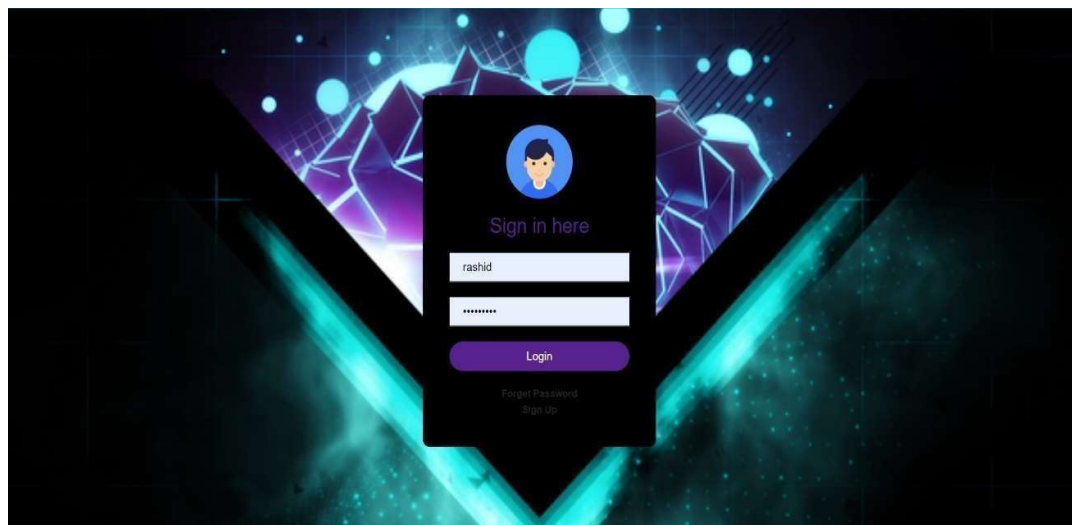
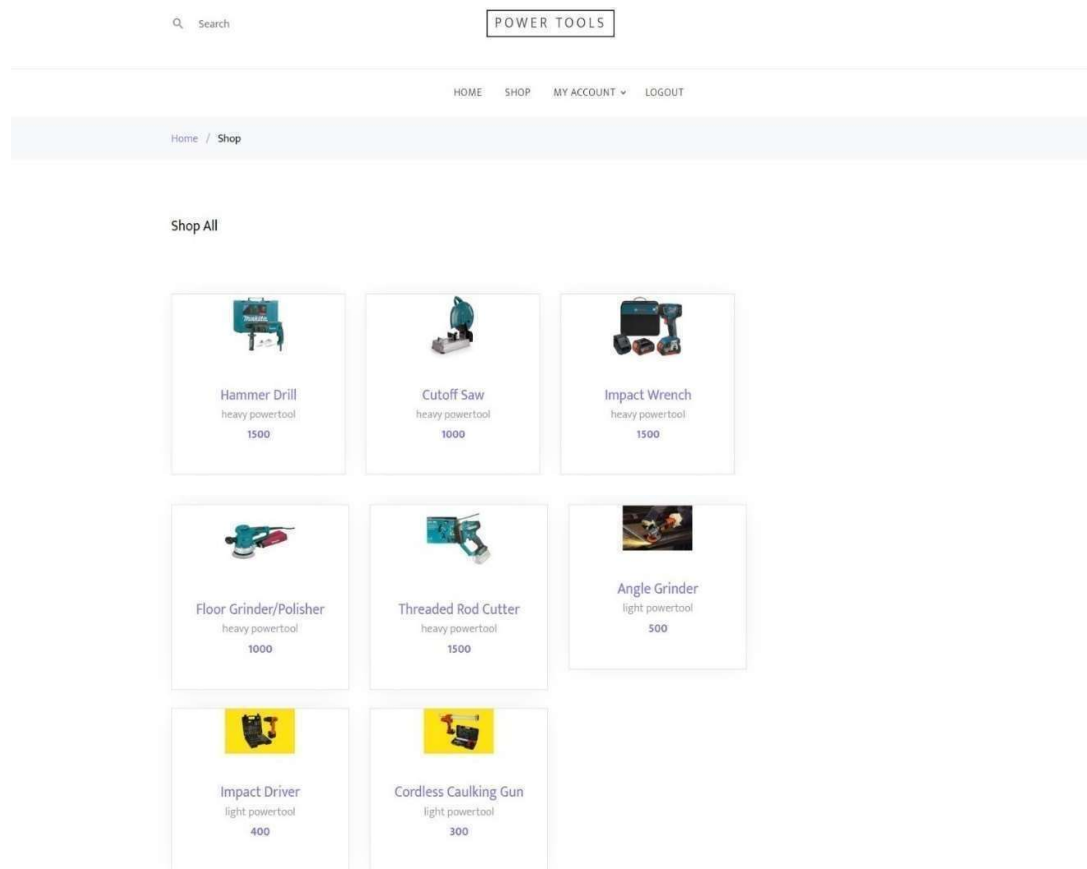
Fig. 8.1.19 Customer Login Page
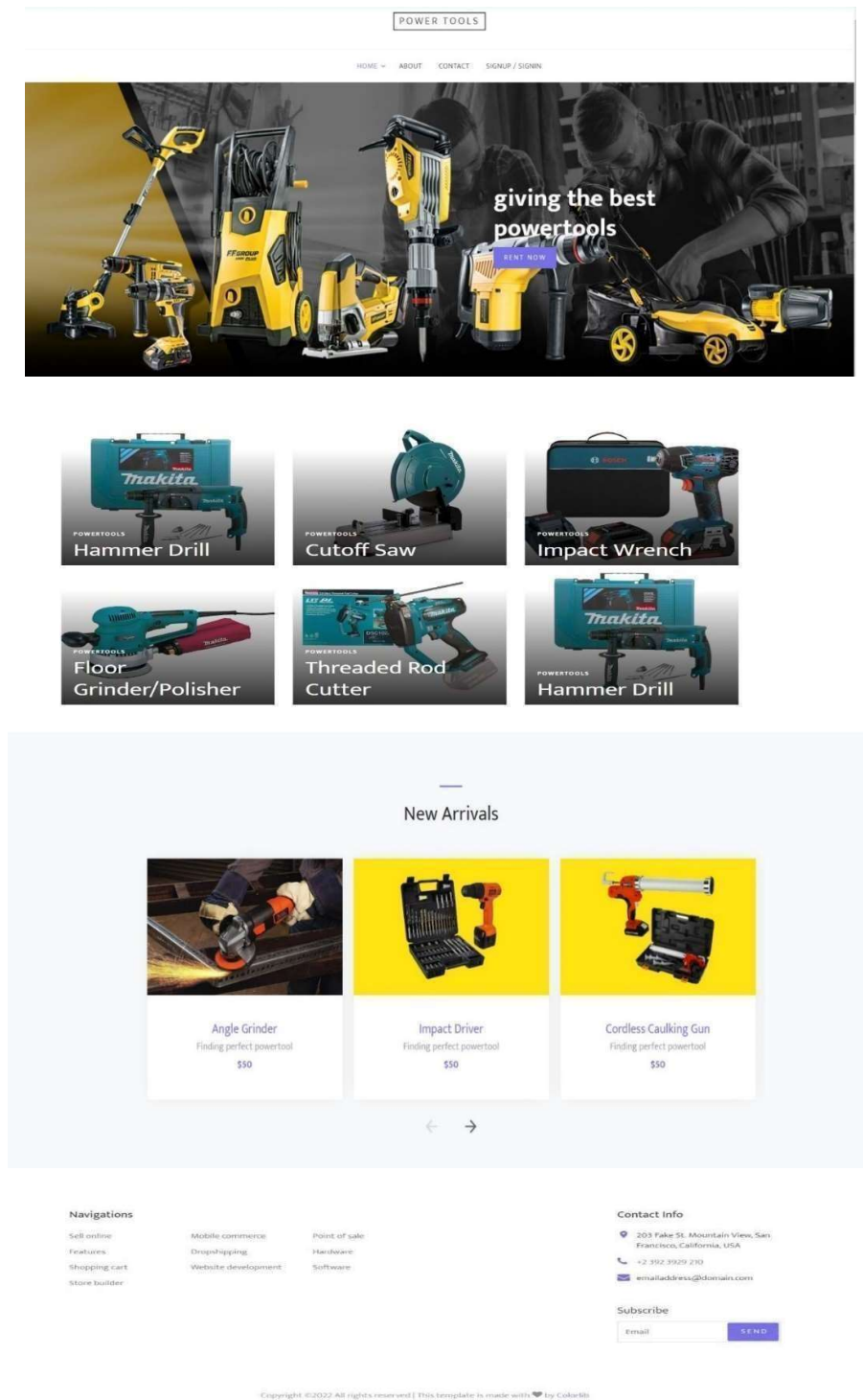
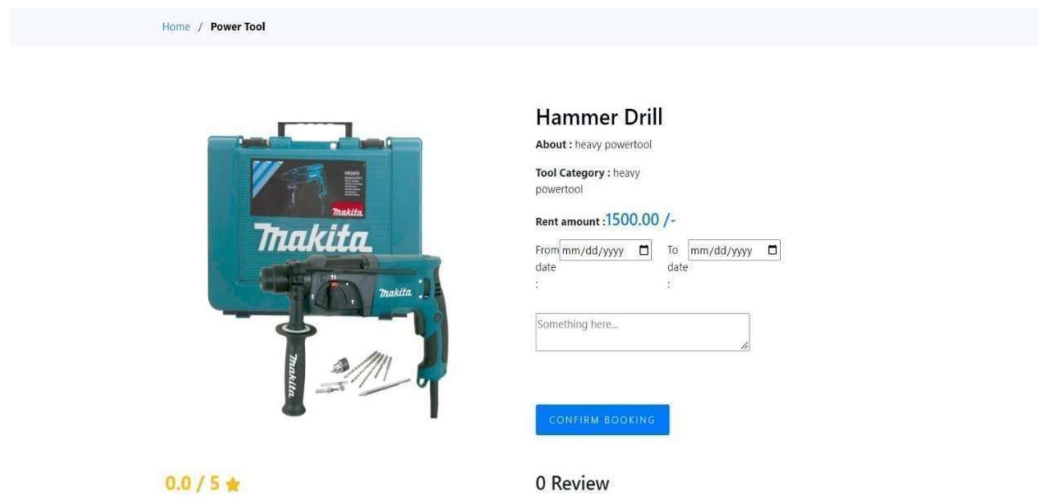Fig. 8.1.20 Customer Home Page

Fig. 8.1.21 customer side Powertools view Page

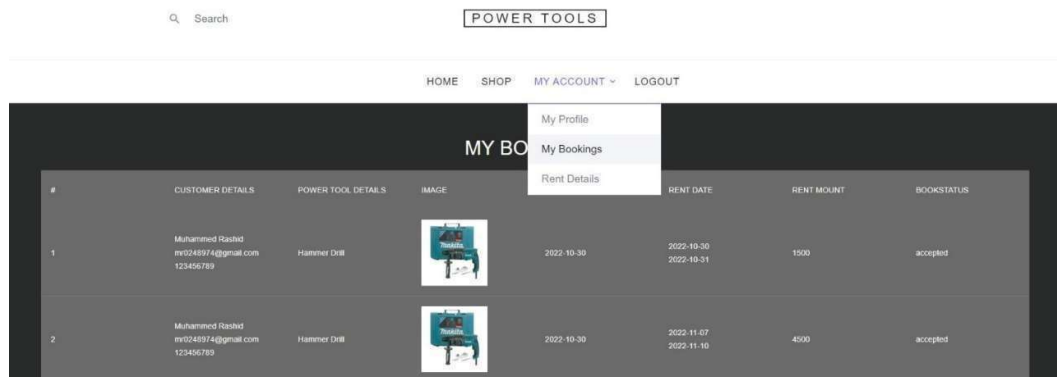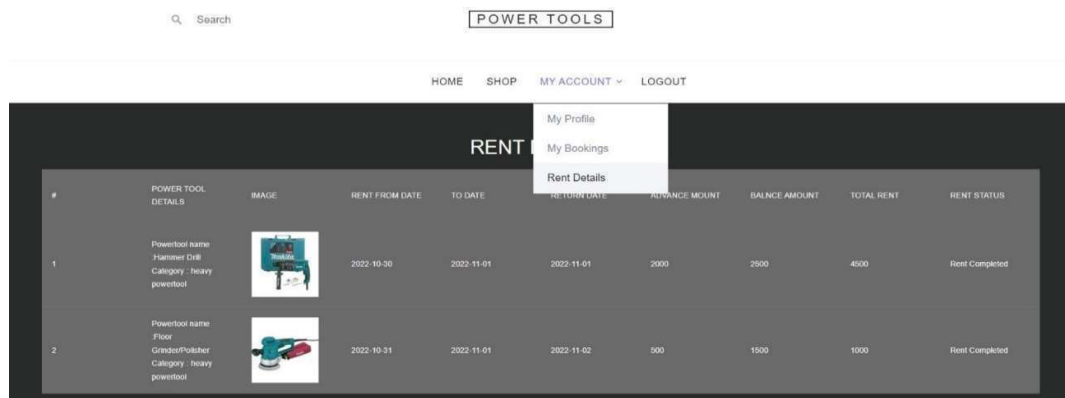Fig. 8.1.22 customer side powertool viewmore Page

Fig. 8.1.23 customer mybookings Page

Fig. 8.1.24 customer rent datails Page