Invoice Generator

Mini Project Report submitted by

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In partial fulfillment of the requirements for the

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Certified that the mini project work entitled

"Invoice Generator"

is a bonafide work carried out by

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in partial fulfilment of the requirements for the award of

Bachelor of Engineering Degree in Artificial Intelligence and Machine Learning Engineering

prescribed by Visvesvaraya Technological University, Belgaum

during the year 2022-2023.

It is certified that all corrections/suggestions indicated for Internal Assessment of Angular and ReactJS(20AM512) have been

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The mini project report has been approved as it satisfies the academic requirements in respect of the mini project work prescribed for the Bachelor of Engineering Degree.

Signature of Guide **Signature of HOD**

Evaluation

Name of the Examiners **Signature with Date**

1. _____

2. _____

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Abstract

Invoices, which are one of the most important documents exchanged between business partners, should be produced with the intention of disseminating them to a broader range of devices through multiple channels which include web and SMS. Handling invoices, product inventory, customer relations and other business transactions via the internet have been found to be a cost-effective way of accomplishing such tasks. Industry experts predict that communication via internet invoices will enable issuers influence customer behavior in a positive way

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CHAPTER 1
INTRODUCTION

The internet, without doubt, has played an important role in digitalizing business processes across companies and organizations of all sizes. It has introduced multiple new channels through which businesses can interact with their customers. A report by Gartner, an Information Technology (IT) research institution, reveals that 70% of all customer interactions will move towards digital, more interactive settings and would be experienced on demand through mediums such as web, mobile and social media platforms by 2017. The generation of today understands technology more than ever and require services delivered as quickly as possible, whenever and wherever they desire.

Nowadays, invoices, which are one of the most important documents exchanged between business partners, should be produced with the intention of disseminating them to a broader range of devices through multiple channels which include web and SMS. Handling invoices, product inventory, customer relations and other business transactions via the internet have been found to be a cost-effective way of accomplishing such tasks. Industry experts predict that communication via internet invoices will enable issuers influence customer behavior in a positive way.

To achieve all these, companies do not have to make huge capital investments by purchasing and maintaining software licenses for applications like Enterprise Resource Planning (ERP), Inventory Management System (IMS) and Customer Relationship Management (CRM) systems and installing them on individual hardware on the business premises. They can instead contain costs, deploy solutions quicker and minimize risk by signing up to use the same application but hosted by a third party and delivered over the internet. This concept is called Software as a Service (SaaS).

1.1 OVERVIEW

An invoice is a commercial document which contains billing information that derives from sales transactions between a supplier and a buyer. In other words, it represents a written verification of the delivery of goods and services from a seller to a buyer. Invoices are an important part of the bookkeeping and accounting processes of any business because they hold sales and transaction records.

1.2 PROBLEM STATEMENT

In spite of today's extensive advancement in digital technology, 90% of the estimated 30 billion invoices exchanged annually in Europe are in paper format. Manual processing of paper invoices has been seen to be among the greatest issues faced by the accounting departments in various businesses. It is time consuming, expensive, labour intensive and susceptible to error, and it has negative environmental effects. With manual handling, invoice reconciliation processes are bound to be slow, and this may give rise to delayed payments and may further affect business relationships. Since manually processed invoices are printed and sent by mail, there exists the possibility or risk of invoices getting lost in transit. Online Invoicing is a web based service that provides businesses with a simplified and strategic way of generating, reviewing, and printing invoices.

1.3 STUDY AREA

An invoice can be directly presented from an 12 issuer's web site, or sent through a consolidator company's service or portal. Online invoicing solutions offer an inexpensive way of delivering invoice information to customers. They also provide robust and advanced platforms that aid in keeping track of customer information and transaction history, thereby enhancing customer care endeavours. This way, companies can better channel their marketing programs, improve sales in a cost efficient way and widen their competitive edge.

1.4 OBJECTIVE

The primary purpose of an invoice generator is to provide a business and its client with a record of sale. An invoice serves an important purpose in small business accounting: invoices demonstrate a client’s obligation to pay you for your services. An invoice offers verification, in writing, of the payment agreement between your business and its client. Invoices set your payment terms and enable you to get paid faster for your services.

1.5 MOTIVATION

Using an invoice generator not only saves on time, but also saves on the costs of paper, stamps, and/or envelopes. Even more so, having a paperless method for invoicing eliminates the need for filing and storage (after all, most invoices, receipts, and business tax financials have to maintain for 7 years).

1.6 ORGANIZATION OF THE CHAPTERS

The project report has been organized under nine chapters, which are as follows:

Chapter I: Introduces to the main idea of the project. It gives a brief knowledge about the aim and methodology of the same.

Chapter II: It includes literature survey of related works.

Chapter III: Discusses the system requirements that are needed for the project. These include functional requirements, non-functional requirements, user requirements and hardware requirements.

Chapter IV: Includes the implementation details of the project, application is explained in detail. It also deals with software approach.

Chapter V: Deals with system testing concepts and the various test cases for the project.

Chapter VI: Includes the screenshots of the working model and code snippets.

Chapter VII: Discuss the results of the project.

Chapter VIII : outlines conclusions and future work that can be done

CHAPTER 2
LITERATURE SURVEY

2.1 Existing survey

An invoice is a formal document you send to your client after they've purchased goods or services from you. Invoices act as both a means of requesting payment and recording the sale that's taken place. Invoices declare in writing exactly what a client has purchased, the date they purchased it, and what they paid for it.

In the earlier stage of billing , we used to create the invoice manually by using pen and paper. We used to write the each and every deatil about the company address, company name, details of transaction, Amount etc using pen and paper. The calculation part is also done manually. This results in error in the transaction if any one of the calculation or the other details are wrong.

2.2 PROPOSED SYSTEM

Online invoicing software helps you create professional invoices both in the office and on the go, and can significantly reduce the threat of human errors. With efficient online invoicing software, it takes a few clicks to send invoices online in a matter of seconds and collect payments automatically. It enables your clients to select their preferred currency and language, making your business entering the global marketplace much more convenient. On the whole, from ensuring accurate billings to providing positive brand reinforcement, online invoicing software has a lot to offer.

CHAPTER 3
SYSTEM ANALYSIS AND REQUIREMENTS

3.1 SYSTEM ANALYSIS

3.1.1 Relevance of Platform

A Web application (Web app) is an application program that is stored on a remote server and delivered over the Internet through a browser interface. Web services are Web apps by definition and many, although not all, websites contain Web apps. According to Web.AppStorm editor Jarel Remick, any website component that performs some function for the user qualifies as a Web app.Web applications can be designed for a wide variety of uses and can be used by anyone; from an organization to an individual for numerous reasons. Commonly used Web applications can include webmail, online calculators, or e-commerce shops. Some Web apps can be only accessed by a specific browser; however, most are available no matter the browser.

3.1.2 Relevance of Programming Language

Web applications do not need to be downloaded since they are accessed through a network. Users can access a Web application through a web browser such as Google Chrome, Mozilla Firefox or Safari.For a web app to operate, it needs a Web server, application server, and a database. Web servers manage the requests that come from a client, while the application server completes the requested task. A database can be used to store any needed information.Web applications typically have short development cycles and can be made with small development teams. Most Web apps are written in JavaScript, HTML5, or Cascading Style Sheets (CSS). Client-side programming typically utilizes these languages, which help build an applications front-end. Server-side programming is done to create the scripts a Web app will use. Languages such as Python, Java, and Ruby are commonly used in server-side programming.

3.2 REQUIREMENT ANALYSIS

3.2.1 Scope and Boundary

Requirements are during early stages of a system development as a specification of what should be implemented or as a constraint of some kind of on the system. They may be a user level facility description, a detailed specification of expected system behaviour, a general system property, a specific constraint on the system, and information on how to carry out some computation or a constraint on the development of the system. The end product of the requirement analysis phase is a requirement specification. The requirement specification is a reconstruction of the result of this analysis phase. Its purpose is to communicate this result to others. System requirements are more detailed descriptions of the user requirements. They may serve as the basis for a contract to the implementation of the system and should therefore be a complete and consistent specification of the whole system. In principle, the system requirements should state what the system should do and not how it should be implemented. However, at the level of detail required to specify the system completely, it is virtually impossible to exclude all design information.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Software Requirements:

- Software: Javascript
  HTML
  CSS
  AngularJS

3.3.2 Hardware Requirements

- Operating system: windows 7 and above.
- RAM: 4GB and above.
- Processor: Intel® Core(TM)2 duo CPU T6500.
- Processor speed: 2.67 GHz.

- CPU: 64-bit operating system

3.4 NON-FUNCTIONAL REQUIREMENTS:

In systems engineering and requirements engineering, a non-functional requirement (NFR) is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviour. Non-functional requirements are conditions under which the system must be able to function and the quality the system must have. It defines how a system is supposed to be.

- Performance
  - With ideal condition of sensors and input, response should be fast and error free.
  - Model performance shall not decrease with time or by usage.
- Flexibility:
  - It will be easy to learn and use.
  - Is able to sense and give the output as quickly as possible.
- User-friendly:
  - The website's multiple features should be self explanatory.
- Response Time:
  - The website should sense ang segregate as quickly as possible.
  - The code should be complied and uploaded fast to the browser.
- Understandability:
  - All users can learn to operate the website because of its simplicity.

CHAPTER 4
APPORACH

4.1 JavaScript

JavaScript is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions. While it is most well-known as the scripting language for Web pages, many non-browser environments also use it, such as Node.js, Apache CouchDB and Adobe Acrobat. Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web. JavaScript enables interactive web pages and is an essential part of web applications. The vast majority of websites use it for client-side page behavior, and all major web browsers have a dedicated JavaScript engine to execute it.

4.2 HTML

The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes, and other items. HTML elements are delineated by *tags*, written using angle brackets. Tags such as `<img />` and `<input />` directly introduce content into the page. Other tags such as `<p>` surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags but use them to interpret the content of the page.

4.3 CSS

CSS is designed to enable the separation of content and presentation,

including layout, colors, and fonts. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.Separation of formatting and content also makes it feasible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device. The name *cascading* comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element. This cascading priority scheme is predictable.

4.4 AngularJS

AngularJS is a discontinued free and open-source JavaScript-based web framework for developing single-page applications. It was maintained mainly by Google and a community of individuals and corporations. It aimed to simplify both the development and the testing of such applications by providing a framework for client-side model–view–controller (MVC) and model–view–viewmodel (MVVM) architectures, along with components commonly used in web applications and progressive web applications.AngularJS was used as the frontend of the MEAN stack, that consisted of MongoDB database, Express.js web application server framework, AngularJS itself (or Angular), and Node.js server runtime environment.As of January 1, 2022, Google no longer updates AngularJS to fix security, browser compatibility, or jQuery issues. The Angular team recommends upgrading to Angular (v2+) as the best path forward, but they also provided some other options.

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CHAPTER 5

SYSTEM IMPLEMENTATION

5.1 Design of user interface

The user interface is the point at which human users interact with a computer, website or application. The goal of effective UI is to make the user's experience easy and intuitive, requiring minimum effort on the user's part to receive the maximum desired outcome.UI is created in layers of interaction that appeal to the human senses (sight, touch, auditory and more). They include both input devices like a keyboard, mouse, trackpad, microphone, touch screen, fingerprint scanner, e-pen and camera, and output devices like monitors, speakers and printers. Devices that interact with multiple senses are called "multimedia user interfaces." For example, everyday UI uses a combination of tactile input (keyboard and mouse) and a visual and auditory output (monitor and speakers).

5.2 MODULES

- Enter the details:
  In this module , you have to enter the details of the client. The summary of the product purchased. In this session we can also add some additional details to be delivered to the client.

- Download:
  In this module, we can download thw invoice that we have generated.

- Print:
  If we want the hard copy of the invoice, we cam print the invoice with all the necessary details.

- Review:
  We can review the invoice that we have generated. Any changes can be made after reviewing the invoice

CHAPTER 6

SYSTEM TESTING

6.1 Testing

Testing phase is performed after coding and connection to detect all the errors and provide quality assurance and ensure reliability of the model. Testing is vital to the success of the system. Testing is a process used to identify the correctness, completeness and quality of the developed software. Testing is the process of questioning a product in order to evaluate it, where the questions are things the tester tries to do with the product and the product answers with its behaviour in reaction to probing of the tester.

Unit Testing is a level of software testing where individual units/ components of a software and equipment are tested. The purpose is to validate that each unit of the software performs as designed. Unit testing increases confidence in changing/ maintaining system. Codes are more reusable. The cost of fixing a defect detected during unit testing is lesser in comparison to that of defects detected at higher levels.

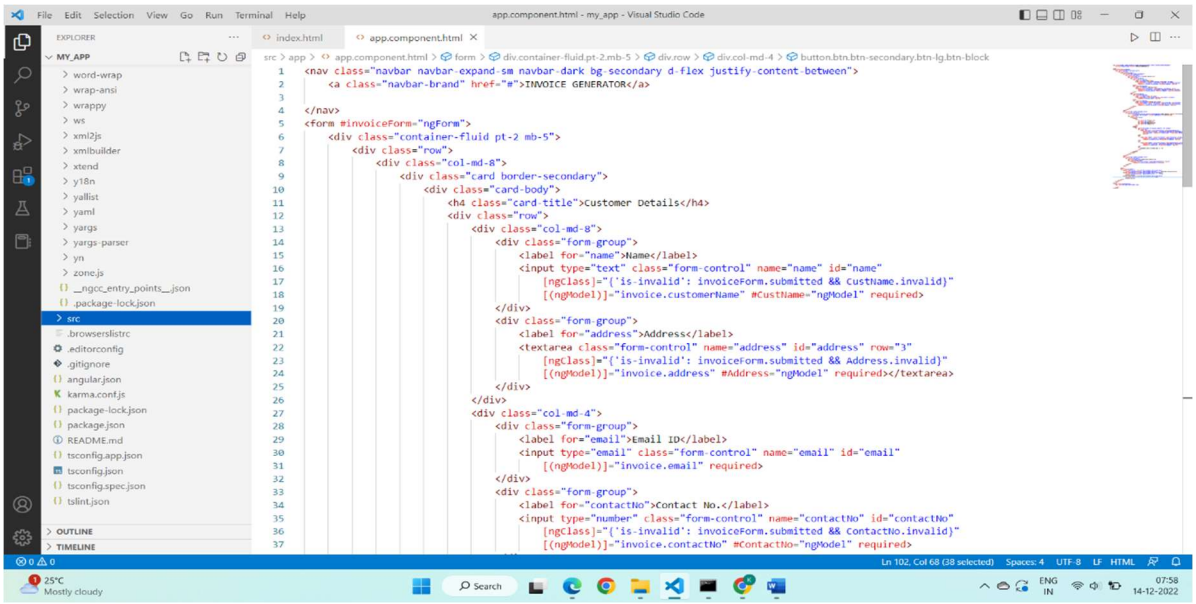
Integration Testing is a level of software testing where individual units are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units. Test drivers and test stubs are used to assist in Integration Testing. Testing performed to expose defects in the interfaces and in the interactions between integrated components or systems. Testing the integration of systems and packages; testing interfaces to external organizations.

CHAPTER 7

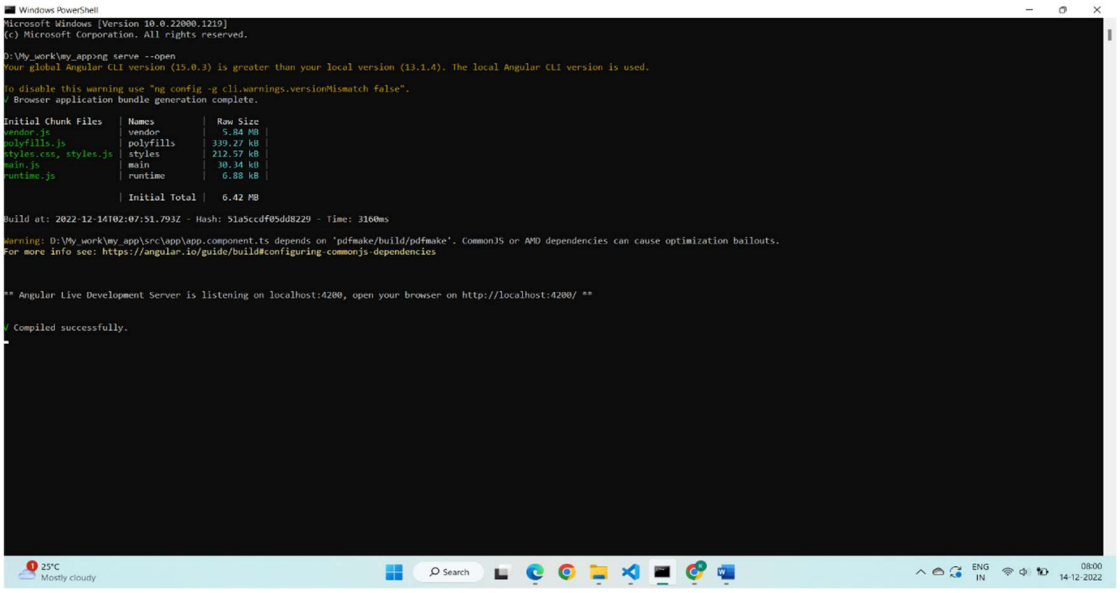
RESULTS

1.1 Working

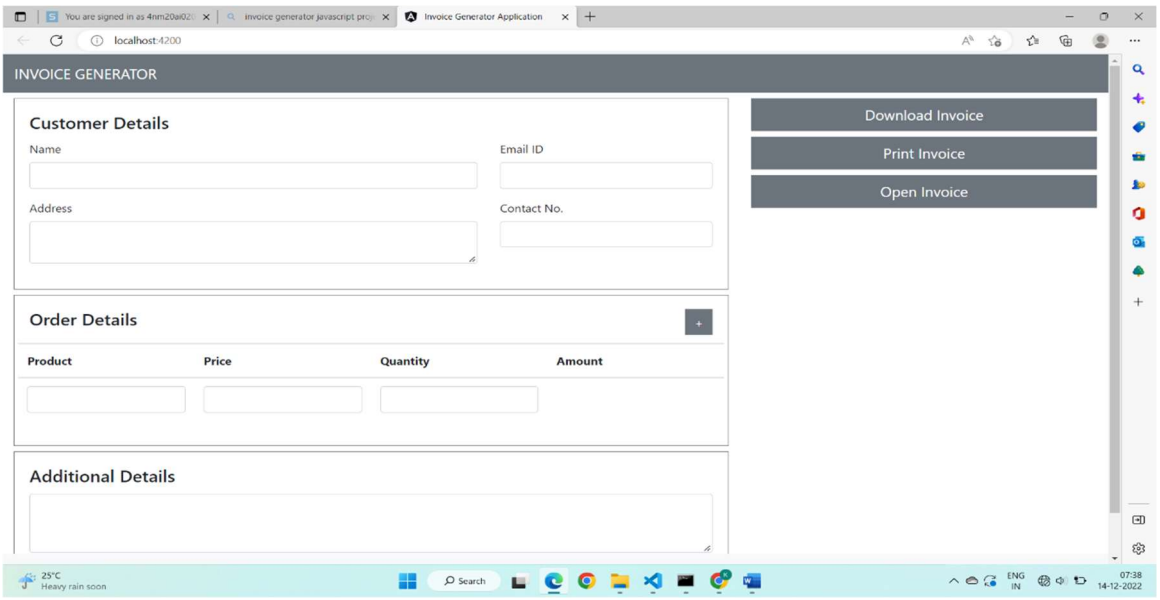
- Step 1: Here we used VScode ide for the programming in different language



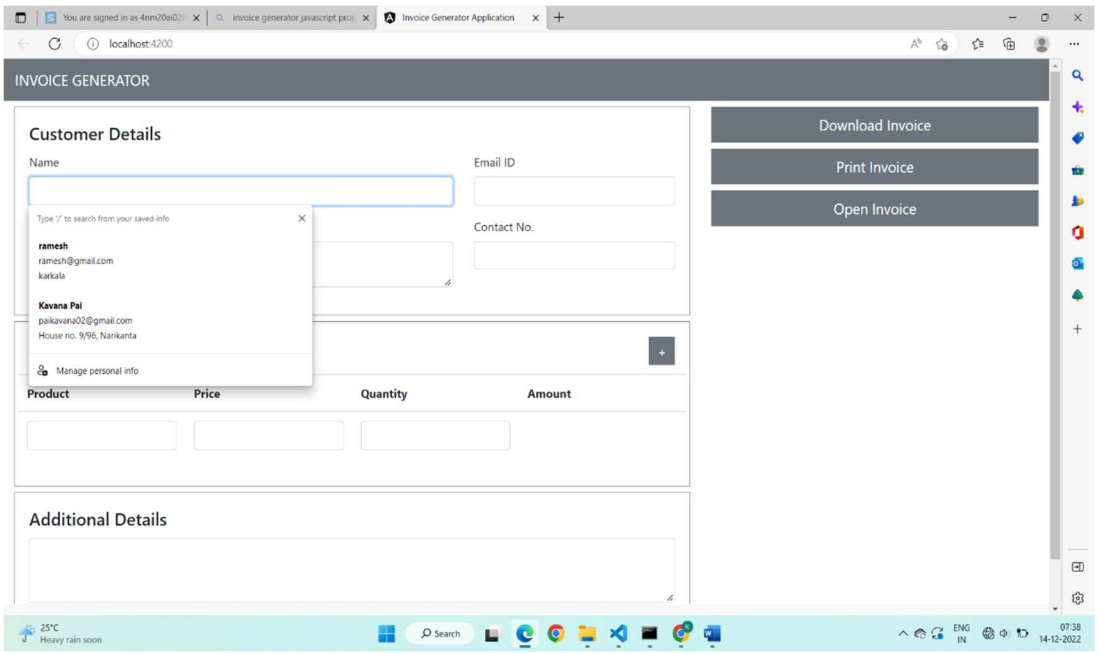
- Step 2: run the AngularJS app using the command prompt.

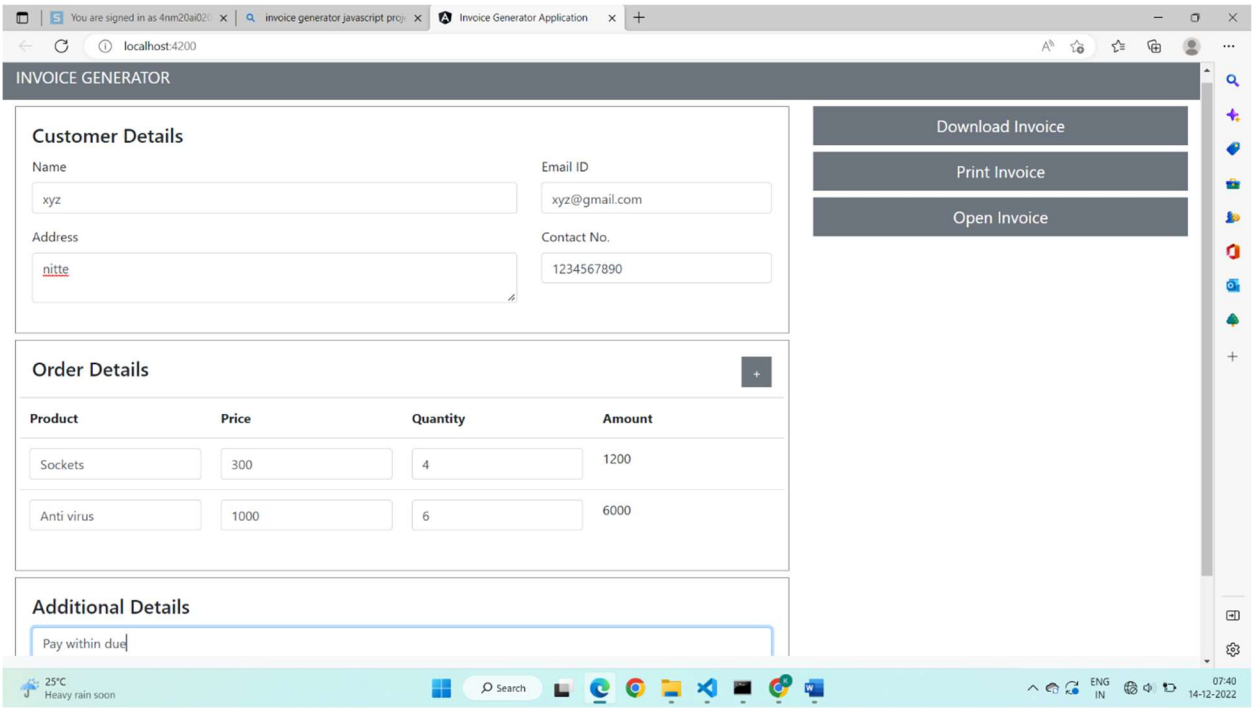


- Step 2: The user interface of the app will be displayed.

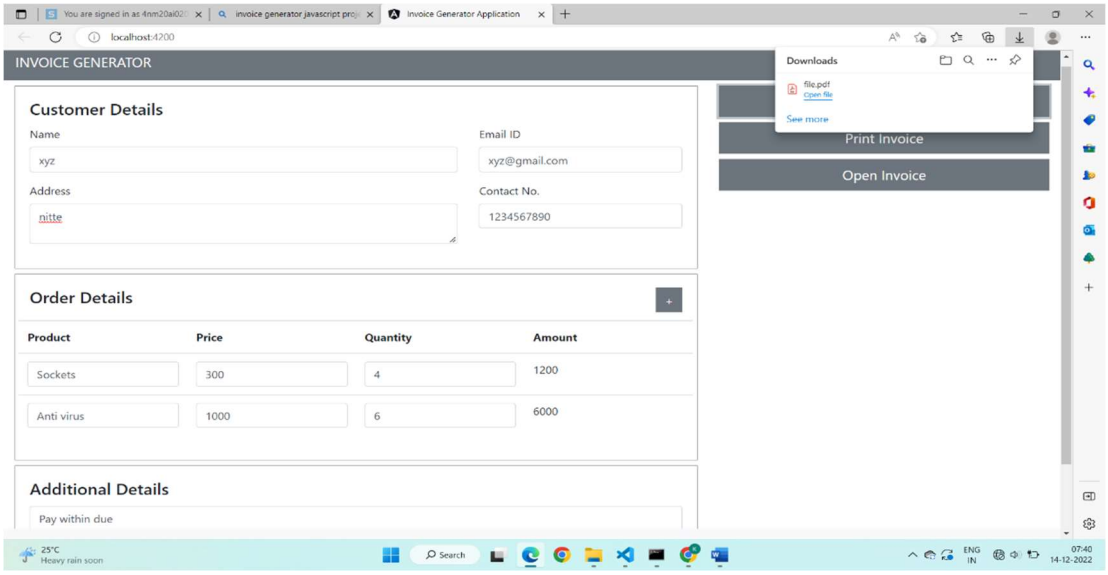


- Step 3: enter the details of the client. If the clent is already a client of you're the details will be displayed in the search tab.

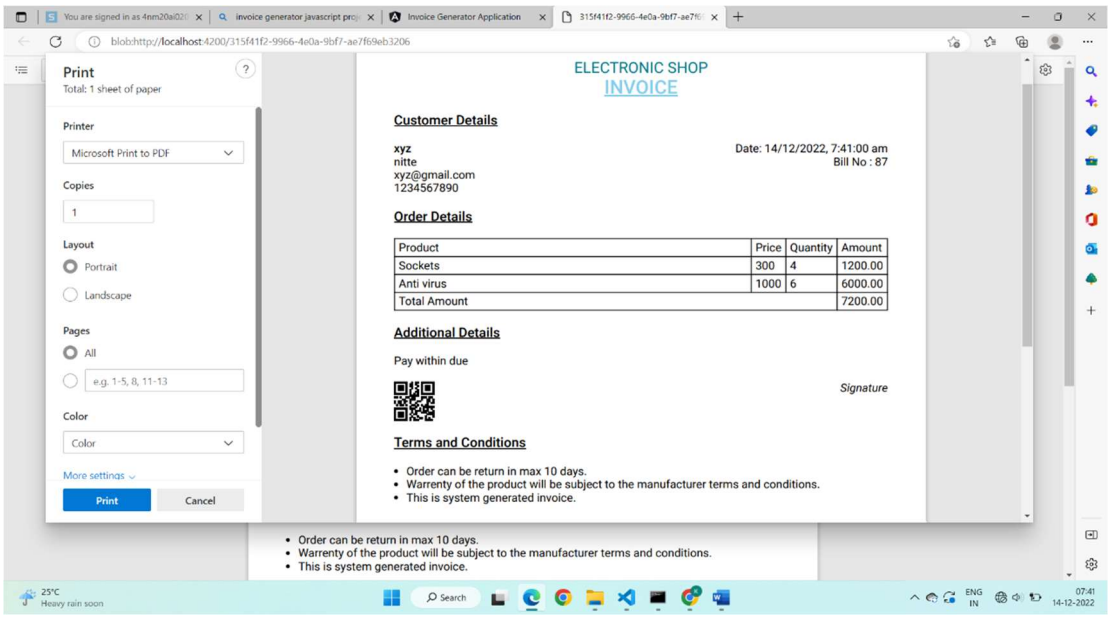




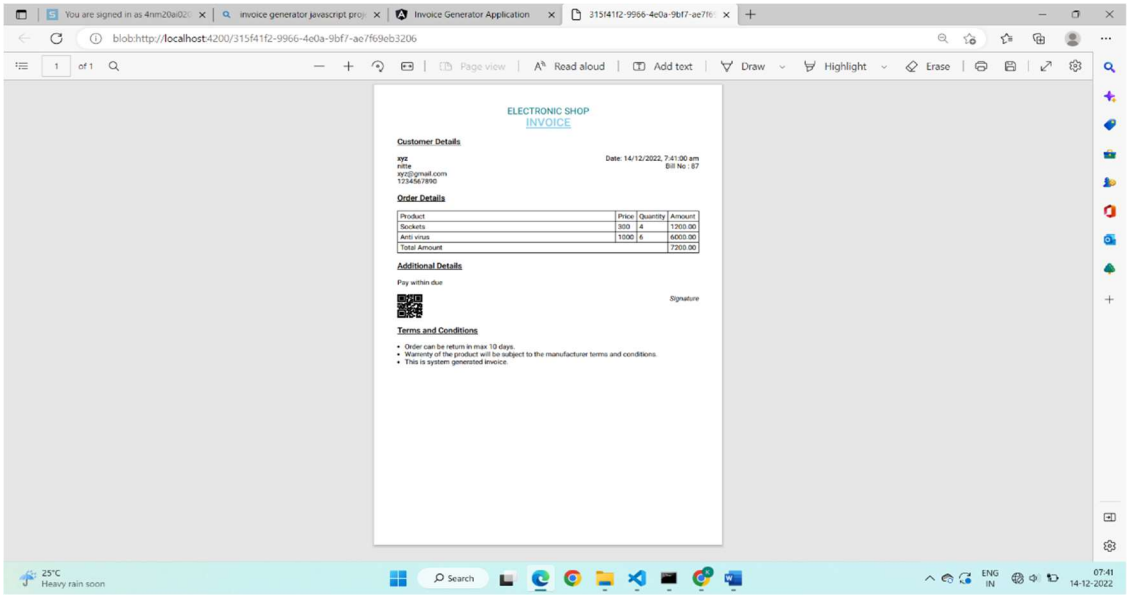
- Step 4: when you click the download button the file will be downloaded.



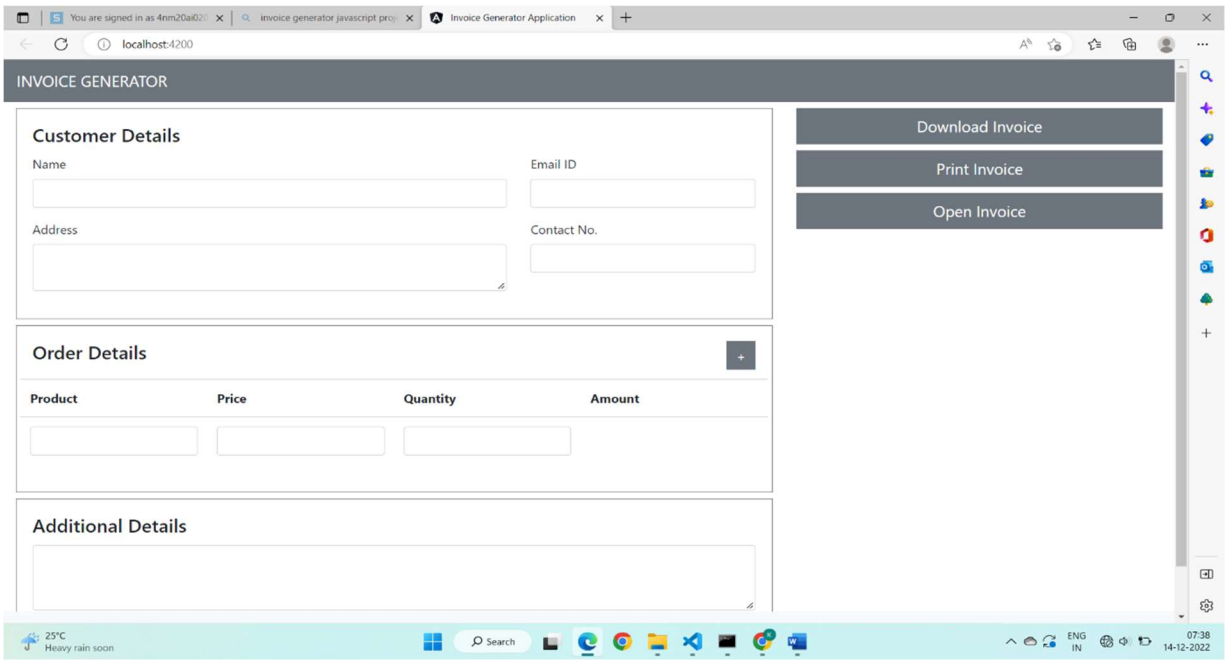
- Step 5: We can also print the invoice for the hardcopy purpose.



- Step 6: we review the invoice to check if there are any changes in the invoice.



- Step 7: The app will reload again for next invoice.


Invoice Generator Application
localhost:4200
INVOICE GENERATOR
Customer Details
Name
Email ID
Address
Contact No.
Download Invoice
Print Invoice
Open Invoice
Order Details
Product
Price
Quantity
Amount
Additional Details

CHAPTER 8

CONCLUSION AND FUTURE WORK

9.1 CONCLUSION

An invoice generator can grow your small business (even if unconventional). Because having the ability to accept payments anywhere and at any time does two things: 1) generate more business revenue and 2) immediately provide tracking and filing of that payment. It is a stress-free way to manage a business on the go; especially using a smart invoice generating smartphone application (i.e. Bookipi). And what is even better, since invoices are automatically stored you do not have to worry about them until you are reconciling your financial accounts (which can easily be imported with some invoice generating software or mobile application).

9.2 FUTURE WORK

Automated invoicing is the process by which you configure your invoice process to function automatically. Automated invoice processing is technology that offers time saving benefits to businesses of all sizes by taking care of the invoice processing, from creation to payment reconciliation. With more traditional invoice processing software, invoices must be sent to the recipient and then the information is entered electronically (or manually) into accounting software, or in some cases ledgers.

With automated invoicing, the invoices are digitized and can be sent and received within seconds, and stored safely in a server or in the cloud. Invoice automation is a powerful tool that when used correctly, can streamline billing operations. It automates time consuming aspects of operations, which can save your business time, money, and improve your cash flow.

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