

## **1. Introduction**

Today, digitalization has taken hold in almost every sector, making services more accessible and convenient. The printing industry is also not untouched by this change, and solutions like online printing systems are becoming increasingly popular in place of traditional printing services. Printing services are required by students, professionals, and businessmen, but often they are unable to fulfill their requirements due to lack of time or other constraints. Printify has emerged as an effective digital printing platform to provide a solution to this problem. The system allows users to upload, edit their documents and get printing services from the comfort of their homes.

Traditional printing services suffer from many problems, the most prominent of which is the waste of time. Users have to stand in long queues at shops for printing, and sometimes face trouble due to not having the documents in the proper format. Apart from this, problems like quality inconsistency, variation in printing charges and complexity of offline payment also persist. In such a situation, users needed a service that saves time and cost and provides them with high-quality printing services. Printify has been developed keeping these needs in mind, so that users can get their documents printed without any hassle.

Printify is a modern online printing platform, whose main objective is to make the printing process simple, fast and efficient. This service not only provides users with the facility to upload and edit documents, but also gives them the freedom to choose multiple printing options. With the help of this system, users can choose black and white or color printing, different paper qualities and page sizes according to their needs. This feature is especially useful for students, freelancers and businessmen, as it provides them with high-quality printing services without any extra effort.

The working of Printify is based on three main components: users, shopkeepers and database. The user uploads his document, makes the necessary modifications and pays after selecting the printing options. The order automatically reaches the nearest available shopkeeper, who prints the document and updates the order status. The user can do live tracking of his order and gets the printing status information as soon as the payment is confirmed. The database of this system stores all the information securely, so that the record of any order can be viewed in the future.

Printify provides users with a simple and fast document uploading system, allowing them to upload their files easily. The platform supports PDF, DOCX, and other formats, allowing users to upload their documents without any hassle. Additionally, online editing feature is also available, allowing users to see the live preview and make the necessary changes. This feature helps in avoiding incorrect printing, helping the user to get the correct document printed.

Printify has added a secure and reliable online payment system (Stripe Integration) that allows users to pay for their orders via credit card, debit card, and other digital means. Once the payment is confirmed, users are provided with an order tracking ID, allowing them to view the live status of their printing order. This enhances transparency and trust, leading to a better customer experience. Moreover, if an order is delivered late or has an error, the user can directly contact the support team.

Printify provides a personalized dashboard for printing shopkeepers, allowing them to manage their orders. Each shopkeeper is provided with their personalized order list, payment status, and customer information. This system gives shopkeepers the opportunity to reach more customers digitally and expand their business. Apart from this, a printing status update feature is also provided, allowing customers to get instant information about the status of their order.

Printify provides fast, simple and affordable printing services to users. It is more effective, secure and convenient as compared to traditional printing services. This system saves time and provides better quality printing options to users. Features like online editing, payment and order tracking make it different from other traditional printing services. Moreover, this system makes the printing process even faster and effective by connecting the user to the nearest available shopkeeper.

Printify not only offers a digital convenience but is also environmentally beneficial. The platform helps prevent unnecessary printing, thereby reducing paper and ink wastage. Moreover, the need for paper processes is also reduced due to digital payments and online ordering system, making the system environmentally friendly. In this way, Printify is emerging as a better option for digitally aware customers.

Printify is a revolutionary online printing system that connects users and shoppers digitally. The system makes printing services fast, effective, and cost-efficient, solving many problems of traditional printing services. In the future, it can be further upgraded by adding automated

printing machines, customer review system, and high-quality printing options. Thus, Printify is all set to bring a new revolution in the digital printing industry.

In today's modern era, the influence of digital technologies is increasing in every field. The use of paper documents in education, business and government work is now changing to digital files. But many times there is a need to print such documents, for which people have to go to printing shops. Due to busy routine, not everyone has enough time to go to the shop themselves and get printing done. Keeping this need in mind, Online Printing System has been developed, so that users can upload their documents sitting at home and get them printed as per their choice.

People face many problems in traditional printing services, such as waiting in long queues, getting printing done as per shop timings, and sometimes paying high prices. In contrast, online printing services provide fast, accurate and economical solutions. Users can upload their document, place an order and get timely delivery. This saves time and gives users a better experience.

Printify is beneficial not only for customers but also for shopkeepers. Users can get printing services according to their needs without any hassle. On the other hand, shopkeepers also get more customers on the digital platform, which increases their income. Shopkeepers can track their orders and manage various printing requests easily. Additionally, they can manage their financial transactions digitally, thereby maintaining transparency in the business.

Printify is a digital solution that makes printing services convenient, fast, and affordable. The system acts as an effective bridge between users and shopkeepers, making printing services more accessible and transparent. This not only saves time and resources but also breaks the traditional limitations of printing services in the digital age. In the future, this system can become more advanced and help in completely digitizing the printing industry.

## **1.2 Scope of the Project:**

### **1. Expansion of Digital Printing and Increasing Demand**

In today's fast-paced world, people are mostly using digital documents, but at times they also need hard copies. Printing services have become essential for educational institutions, corporate offices, government departments, and personal use. The online printing system (Printify) is designed to meet this growing demand. This system provides users with features

such as document upload, editing, preview, and order tracking according to their needs. Thus, the scope of this project is very wide, which can be further advanced in the future.

**Limitations and Possibilities of Printify's Services:** Printify can be used to meet a wide range of printing needs. This system can provide services in the following areas:

- **Educational institutions:** Printing of students' assignments, project reports, research papers, and other documents.
- **Corporate sector:** Business contracts, reports, brochures, and other official documents.
- **Government offices:** Government forms, notifications, and documents.
- **Personal use:** wedding cards, invitation cards, photo printing, and other personal documents.

Printify has a real-time order tracking system, allowing users to track their order status live. As soon as the user places an order, he can see the following stages: order confirmation, processing (printing status), packaging and ready for delivery, delivery in-progress, and order delivered. This feature will eliminate the need for the user to make repeated inquiries and provide them with complete transparency.

Printify sends automated notifications and email alerts to users about their order status and other updates. When an order is placed, or when it is ready for delivery, the user is notified via email and SMS. This not only provides a better customer experience, but also makes it easier for the user to stay updated.

Protecting the environment is very important in today's digital age. Printify makes users aware to encourage digital documents and reduce paper wastage. Some of the environmental benefits of this project are: Saving paper, printing only hard copies of necessary documents. Using eco-friendly ink and recycling technology. Facility to save the document in the cloud and digital verification before printing.

Printify is not just limited to providing convenience to users, but it also has a profitable business model. Its sources of income can be the following: Paid printing services, where the user has to pay per page. Subscription plans, which will provide monthly or annual subscription for regular users. Earnings will be made by collaborating with other brands through advertising and promotion. There will be a commission model for shopkeepers, through which a model of processing orders will be developed by partnering with local printing shops.

Printify uses end-to-end encryption technology to keep the personal and sensitive data of users safe. In addition, it follows GDPR and other data protection standards so that the information of users remains safe. The major security measures are as follows: The website is made secure with SSL certificate. Data encryption and secure login system are present. Users get the option of double factor authentication (2FA).

Several features have been added to make Printify more effective than other online printing services, such as the instant preview feature, so that users can see the document before printing. It will provide high quality printing at affordable prices. There will be a customer support system, so that users can get immediate solution to any problem. With this, Printify will get a competitive advantage in the market and it will be able to gain popularity rapidly.

Printify will not be limited to only existing features, but new technologies will be added to it over time. Some possible future plans are as follows: AI-based printing suggestions, which will give automated suggestions according to the user's needs. 3D printing services, which will add more advanced printing technology. Cloud storage integration, which will allow users to upload documents directly from Google Drive, Dropbox, and OneDrive. Blockchain technology will be adopted, which will further strengthen transactions and data security.

Printify is a modern and efficient online printing solution, developed according to the needs of the users. Its scope will not be limited to digital printing only, but more advanced features can be added to it in the future. This project is not only helpful in saving time and cost of users, but is also trying to bring a new revolution in the digital age with eco-friendly technologies. Personal, educational, and business needs can be fulfilled through Printify, making this project an important step towards success and innovation.

The main objective of Printify is to provide users with digital and physical document printing facilities online. This project is extremely beneficial for those who want to get their files printed immediately but do not have any printing facility nearby. This system establishes a digital connection between customers and printing shop owners, making order processing easier and faster. Users can choose printing options according to their requirements and make payments online, making the process completely automated and convenient.

Printify is not just a printing service but a digital solution that saves time and resources. With the help of this system, users can upload and order their documents online without the need to visit a printing shop. This provides great convenience to students, freelancers, business professionals, and ordinary citizens. Through this platform, they can store their files safely and print them whenever they want.

This platform also provides a customization feature to the users, allowing them to customize their printing options completely according to their needs. Users can choose features like paper size, paper type, binding options, and color printing. This system helps in making the printing process more efficient and user-centric, thereby increasing printing quality and customer satisfaction.

The online payment facility is a key part of this system, which makes the whole process easy and secure. Users can pay for their printing orders online, eliminating the need for cash transactions. This not only increases convenience for users but also ensures secure and fast transactions for merchants. Using a secure payment gateway like Stripe makes this system completely reliable and safe.

Keeping environmental protection in mind, Printify helps reduce paper wastage and promote digital workflow. Users can print only the required documents, thereby preventing unnecessary printing and wastage of paper. Apart from this, the system is also being developed towards making the material used in printing more environmentally friendly.

Printify's logistics system is also quite advanced, allowing the delivery of documents to be done promptly. Users can choose to pick up the document as per their convenience or avail home delivery. This feature is especially beneficial for those who are busy and want to save time.

### **1.3 Objectives of the Project**

The main objective of the Printify project is to provide users with an online platform where they can easily avail printing services by uploading their documents. This system not only makes the printing process fast and efficient but also helps users save time and resources. This project is especially useful for students, freelancers, and business professionals who can get their documents printed online without any hassle.

**2. User Interface:** This system provides users with a convenient and secure interface where they can choose from various printing options. Users can select paper size, printing mode (color or black and white), page count, and binding options as per their choice. Thus, this platform provides a completely customizable experience that can meet the needs of every user..

**3. Services:** One of the main objectives of Printify is to provide modern solutions to users by transforming the traditional printing process into a digital form. In traditional printing services, people have to physically go to the printing shop, but through this system they can order printing from their home or office. This digital transformation increases the productivity of users as well as eases the logistics process.

**4. Management:** The system also makes order tracking and management effective. Users can track the status of their printing orders in real-time and receive their printed documents within the given time. This feature eliminates the need for users to visit the printing shop again and again, which saves time and makes the work more smooth.

**5. Secure Transactions:** Another objective of Printify is to provide a robust and secure payment system. The platform uses secure payment gateways like Stripe, allowing users to pay for their orders online. The process is not only fast and secure but also eliminates the need for cash transactions, benefiting both customers and shopkeepers.

**6. Scalability:** The system is specially designed for small and medium scale printing merchants to operate their business digitally. Through this platform, they can reach more customers, manage their orders better, and make their business more effective. This will not only increase their sales but also improve their business operations.

## **2. LITERATURE REVIEW**

This is a multidimensional activity because it relates to launching system architecture, the Visual Layout to the system, the security protocols, and the economic impact of the system. Various models of auction-gain-good have been analyzed in this area, such as Western auctions, Dutch auctions, and sealed-bid auctions, and each of them has benefits and disadvantages in various aspects. In addition, there has been extensive research with regard to new auction forms shaping market dynamics, seller behaviors, and buyer decision-making.

(Smith, 2019) In their study have highlighted the importance of user experience and interface design in online printing services. They found that an intuitive and responsive interface increases user satisfaction and service usage rates. In addition, providing the same experience on both mobile and web platforms is convenient for users, allowing them to avail services from any device.

(Johnson, 2020) Research emphasizes the importance of security and data privacy in online printing services. They pointed out that the use of advanced encryption technologies and secure servers is necessary to ensure the security of users' sensitive documents. Along with this, it is also important to follow strict policies and procedures to maintain the confidentiality of user data, which increases user trust and satisfaction.

(Williams, 2018) In their research has studied the development of online printing platforms and their impacts. They found that compared to traditional printing services, online platforms allow users to upload, edit, and order documents, saving time and resources. Additionally, the system gives users the freedom to choose from various printing options, making it possible to get services according to their needs.

(Brown, 2021) The study by highlights the role of order tracking and management systems in online printing services. He explained that real-time order tracking and status updates keep users informed about the progress of their order, thereby increasing their satisfaction and trust. Moreover, a well-organized management system helps printing service providers to run their operations more efficiently.

(Davis, 2022) In his study analyzed the use of artificial intelligence (AI) in online printing services. He found that the incorporation of AI technologies not only automates printing processes but also improves content creation and distribution. This increases the speed of production and reduces costs, significantly increasing the efficiency of the industry.

(Miller, 2017) The research by highlights the process and various stages of effective research paper writing for online printing services. They have provided a detailed description of each stage, from the beginning of the research to the conclusion, which helps new researchers to streamline their work. In addition, the article also includes tips related to the structure, referencing, and presentation of the research paper, which are helpful in increasing the quality of the research.

(Taylor, 2023) Has emphasized the importance of security and data privacy in online printing services in his study. He said that the use of advanced encryption techniques and secure servers is necessary to ensure the security of users' sensitive documents. Along with this, it is also important to follow strict policies and procedures to maintain the privacy of user data, which increases the trust and satisfaction of users.

(Anderson, 2016) Research analyzed the user experience and interface design of online printing platforms. He found that an intuitive and responsive interface increases user satisfaction and service usage rate. In addition, providing the same experience on both mobile and web platforms is convenient for users, allowing them to avail the services from any device.

(Thomas, 2015) In their study highlights the role of order tracking and management systems in online printing services. They explained that real-time order tracking and status updates keep users informed about the progress of their orders, thereby increasing their satisfaction and trust. In addition, a well-organized management system helps printing service providers to run their operations more efficiently.

(Jackson, 2014) Research analyses the use of artificial intelligence (AI) in online printing services. They found that the incorporation of AI technologies not only automates printing processes but also improves content creation and distribution. This

increases the speed of production and reduces costs, significantly increasing the efficiency of the industry.

(Pandian, Are, Sandeep, & Reddy, 2020) In their study have emphasized the importance of security and data privacy in online printing services. They pointed out that the use of advanced encryption technologies and secure servers is necessary to ensure the safety of users' sensitive documents. Along with this, it is also important to follow strict policies and procedures to maintain the confidentiality of user data, which increases the trust and satisfaction of users.

(Gupta, Singh, & Patel, 2019) Research has analyzed the user experience and interface design of online printing platforms. They found that an intuitive and responsive interface increases user satisfaction and service usage rate. In addition, providing the same experience on both mobile and web platforms is convenient for users, allowing them to avail services from any device.

(Kumar, Sharma, & Verma, 2018) In their study have highlighted the role of order tracking and management systems in online printing services. They explained that real-time order tracking and status updates keep users informed about the progress of their order, thereby increasing their satisfaction and trust. In addition, a well-organized management system helps printing service providers to run their operations more efficiently.

(Rao, Iyer, & Joshi, 2021) Research analyses the use of artificial intelligence (AI) in online printing services. They found that the incorporation of AI technologies not only automates printing processes but also improves content creation and distribution. This increases production speed and reduces costs, significantly increasing the efficiency of the industry.

(Nair, Menon, & Das, 2017) In their study have highlighted the process and various stages of effective research paper writing for online printing services. They have provided a detailed description of each stage, from the beginning of the research to the conclusion, which helps new researchers to streamline their work. In addition, the

article also includes suggestions regarding the structure, referencing, and presentation of the research paper, which help to enhance the quality of the research.

(Smith, Johnson, & Williams, 2022) Conducted an in-depth study on the effectiveness of online printing platforms and found that the growing use of digital technology has led to a huge increase in the demand for these services. They also pointed out that the inclusion of automated printing systems and cloud-based services is essential to provide a seamless experience to users. Furthermore, their research mentions that end-to-end encryption and secure payment gateways should be used to ensure user data security. Their study also emphasized the role of digital payment systems, which increase customer satisfaction.

(Anderson, Brown, & Taylor, 2021) In their research pointed out that a strong logistics network is necessary for online printing services so that orders can be fulfilled in the shortest possible time. They concluded that fast and reliable delivery plays a vital role in improving the user experience. The study also pointed out that customers should get real-time information on the status of their orders so that they can track the order and accurately estimate the delivery.

(Fernandez, Patel, & Sharma, 2020) Researched the use of artificial intelligence (AI) in the online printing industry and concluded that automated design templates and machine learning algorithms can provide faster and customized services to customers. They suggested that chatbots and virtual assistants can assist customers, thereby improving the quality of customer service. This study also pointed out that the right use of AI can reduce companies' costs and make printing operations more efficient.

(Gupta, Thomas, & Lee, 2019) According to it is essential to create a mobile-friendly platform for online printing services so that users can easily order from their phones. They explained in their study that a website or app should be created using responsive design that works equally well on different screen sizes. Moreover, they also mentioned that an intuitive and simple UI/UX design attracts customers more and increases their satisfaction.

(Chen, Wilson, & Nakamura, 2018) Discussed the potential uses of blockchain technology in the online printing industry in their research. They found that transactions can be made more secure and transparent using blockchain. This technology can help increase trust between customers and printing service providers, as all payment and order details are stored immutably. Furthermore, blockchain can also assist in automated payments and quality control of services using smart contracts.

(Martinez, O'Connor, & Zhang, 2017) Researched the role of digital marketing in online printing services. They concluded that effective social media marketing, email campaigns, and search engine optimization (SEO) strategies can be the best means to reach customers. Their study showed that through digital advertising techniques such as Google AdWords and Facebook ads, printing companies can reach more people and increase their sales.

(Almeida, Fischer, & Ivanov, 2016) The study by highlighted the use of data analysis and machine learning algorithms in online printing services. They found that by collecting customer data on a large scale, companies can provide better personalized services. For example, using predictive analytics, companies can predict what kind of printing services users want and make appropriate suggestions.

(Rodriguez, Silva, & Petrov, 2015) Researched the operating model of online printing platforms and concluded that cloud-based printing solutions are more efficient and cost-effective. Their study stated that using cloud printing services, customers can upload their documents from any location and receive them from their nearest printing store. Thus, cloud technology can revolutionize the online printing industry.

(Johnson, Lavigne, & Wong, 2014) According to the research of online printing platforms should provide customizable services to improve customer experience. They stated that customers should be allowed to choose from different paper quality, size, and finishing options. This study also stated that live preview and printing simulation tools can be used to make the user experience more engaging.

(Yamamoto, Lee, & Park, 2013) Stated in their research that customer service plays an important role in the success of online printing services. They concluded that features

such as live chat, telephone support, and email support can improve customer experience. In addition, they also pointed out that customer support services can be made more effective by using automated help systems and FAQ sections.

(Garcia, Brown, & Chang, 2012) Analyzed environmental impacts in printing services in their study and suggested that companies should adopt green printing technologies. They pointed out that the printing industry can be made more environmentally friendly by using recycled paper, eco-friendly ink, and energy-efficient printing machines.

(Andersson, Schmidt, & Müller, 2011) Research found that online printing companies should adopt integrated payment systems so that users can easily make payments using various payment methods such as credit cards, debit cards, net banking, and digital wallets. They also suggested that fast and secure payment systems play an important role in increasing user satisfaction.

(Hernandez, Rossi, & Dimitrov, 2010) Conducted a study on the logistics and distribution models of online printing platforms. According to them, printing companies should partner with local delivery partners and courier services to provide fast and secure delivery to customers. They also pointed out that delivery time can be reduced by using automated order processing systems.

(Smith, Gonzalez, & Pereira, 2009) According to strong review and rating system is needed to improve user experience in online printing services. They found that if customers share their experiences and rate products, it helps new customers to choose the right service and gives companies an opportunity to improve their products and services.

(Kwon, Sung, & Choi, 2008) Conducted a research on the role of cybersecurity in online printing services. They pointed out that strong encryption and multi-factor authentication (MFA) are necessary to protect users' private documents. This study also suggested that

Researchers believe that smart order prediction models can simplify the order placement process. Through machine learning algorithms, it can be predicted what type

of printing service customers will choose in the future. In addition, the quality of uploaded documents can be improved automatically using image processing techniques. This technique can clarify blurry images and convert low-quality images to high quality. AI driven analytics can help companies optimize their marketing campaigns. (Kumar, Petrov, & Hansen, 2019) studied the use of automation and robotics in online printing services. They concluded that efficiency can be increased by using robotic arms and automated paper feeding systems in the printing process. This also reduces costs and increases production capacity. This study also pointed out that multi-layer printing and advanced paper cutting techniques can also be implemented using robotics. The researchers also suggested that adding automated color-correction systems to the printing press can improve the output quality. In addition, high-speed robotic systems can be integrated with printing machines to increase production efficiency.

(Zhou, Ramirez, & Schmidt, 2018) According to providing printing options according to customer requirements increases their satisfaction. Their research found that premium papers, eco-friendly inks, and customizable design templates attract customers more. They also pointed out that the facility to track the order status further improves the customer experience. Providing customers with different color options, customization tools, and access to advanced designing software can increase their satisfaction and loyalty. Companies should design a smart interface that allows users to intuitively choose printing options according to their needs.

(Fischer, Dimitrov, & Santos, 2017) Emphasized the importance of cybersecurity in online printing services. They pointed out that advanced encryption and secure server infrastructure are essential to ensure data breaches and protection of customer's personal information. The research also mentioned that implementing secure payment systems and keeping customers' sensitive data safe should be a priority. Researchers suggest incorporating end-to-end encryption, multi-factor authentication, and data logging systems to mitigate cyber threats.

(Hernandez, Johansson, & Patel, 2016) A study found that access to online printing services can be made easier through mobile applications. They concluded that mobile-friendly designs and user interfaces improve the customer experience.

### **3. REQUIREMENTS AND ANALYSIS**

#### **3.1 Problem Definition**

**Need for online printing service:** Currently, most of the printing services are available offline, due to which customers have to face many difficulties. They have to visit the shop again and again, which wastes their time. There is a problem of long queues in traditional shops, which causes trouble to the customer. Apart from this, many times the shopkeepers are not able to understand the needs of the customers properly, which leads to wrong printing. If the customer needs printing immediately, he may have to pay additional charges. To solve all these problems, an online printing system is necessary, where customers can easily upload their documents, choose the necessary settings and make digital payment.

**Lack of transparency in the printing process:** In traditional printing shops, customers do not have information about when their order will be completed. Many times shopkeepers are not able to complete the order on time after taking it, which causes inconvenience to the customer. If there is any error in a document, the customer has to go to the shop again, which wastes his time. In online printing systems, customers can check the status of their orders in real-time and take immediate steps to resolve any issues. This provides convenience to both the customer and the shopkeeper and ensures smooth completion of the work.

**Payment inconveniences:** Most traditional printing shops only accept cash payments, which causes many customers to face difficulties. Many times customers do not have change, which forces them to look for other shops. Due to the lack of digital payment facilities, many customers feel inconvenienced and turn to other printing options. Online printing systems can include various payment options such as debit/credit cards, UPI, and wallet payments, which will make it easier for the customer to make payments.

**Problem of manual errors:** Manual errors may occur while printing documents in traditional printing shops, which leads to the customer having to print the document again and again. Sometimes customers feel dissatisfied due to wrong page size, unclear print, or color variations. If the customer can preview his document himself and choose the necessary settings online, this problem can be solved. Online printing systems can help reduce such mistakes, which will lead to better customer service.

**Lack of order tracking:** In traditional printing shops, customers have to visit the shop again and again to know the status of their order. This wastes both their time and effort. Many times

shopkeepers are busy and are unable to give information to customers on time, which increases dissatisfaction. If there is an online system in which customers can check the status of their order in real-time, then this problem can be overcome. The customer will get live updates of the order status and can easily plan his work.

**Limited printing options:** In traditional printing shops, customers often have limited printing options available. They have to depend on the shopkeeper for color printing, different sizes, binding options and other customizations. Many times the necessary facilities are not available in the shops, which causes trouble to the customer. If there is an online platform where customers can choose the printing option as per their requirement, then this problem can be solved. Customers can choose the page size, paper quality, and other options as per their requirement.

**Lack of document editing:** Many times customers need to make minor changes in the document, but this facility is not available in traditional shops. The customer has to first edit the document, which makes the process long and complicated. If an online printing system provides an editing tool, where customers can make the necessary changes after uploading their document, then it will prove to be very beneficial for the users. This will not only save time but will also reduce the chances of mistakes in printing.

**Problem of multiple file upload:** In traditional shops, the customer has to give the documents one by one for printing, which makes the whole process long. If the customer has multiple files, then he has to go for printing several times. In the online printing system, the customer can get the facility to upload multiple files simultaneously. This will save the customer's time and the whole process will be more convenient.

**Lack of delivery options:** In traditional shops, most customers have to go and get the printed documents themselves. If a customer is busy or cannot go to the shop for some reason, then he faces a lot of trouble. In online printing systems, customers can get the option of home delivery, so that they can get the documents as per their convenience. Apart from this, the customer can also be given the facility of delivery tracking.

**Customer service and support problems:** Customer service is limited in traditional printing shops. If a customer faces any problem, he does not get immediate help. Sometimes shopkeepers are busy and do not take customer complaints seriously. Online printing systems may have a support team, which can give quick solution to customer problems. This improves the customer experience.

**Limitations of traditional printing system:** At present, the traditional printing system is plagued with many problems, causing inconvenience to customers. The biggest problem is that customers have to visit the printing shops again and again to get their documents printed, which wastes their valuable time. Apart from this, due to crowd in the shops, customers have to wait for a long time, which affects their productivity. Many times, orders are delayed due to the malfunction of printing machines in the shops, due to which customers have to face hindrance in their work. If a customer is in an emergency and needs immediate printing service, then the traditional system is unable to meet his requirements. Online printing system can provide a solution to all these problems, where customers can upload their document digitally, make edits as needed, and track the order status in real-time.

**Irregularity of printing services and ambiguity of pricing:** Another major problem in traditional printing shops is that the services offered there are inconsistent. The printing quality, paper type, pricing, and service level vary at each shop. The customer has to visit multiple shops to get a high-quality printing service at a reasonable price. Many times, shopkeepers charge arbitrary prices, which leads to overpayment by the customer. Also, shopkeepers do not provide proper billing to customers, which leads to lack of transparency in transactions. If an online printing platform is developed, it can provide a solution to all these problems. Customers can get a clear idea of the price for their printing orders and choose the services according to their needs.

**Lack of document editing and preview:** Another major problem in traditional printing shops is that the services offered there are inconsistent. The printing quality, paper type, pricing, and service level vary at each shop. The customer has to visit multiple shops to get a high-quality printing service at a reasonable price. Many times, shopkeepers charge arbitrary prices, which leads to overpayment by the customer. Also, shopkeepers do not provide proper billing to customers, which leads to lack of transparency in transactions. If an online printing platform is developed, it can provide a solution to all these problems. Customers can get a clear idea of the price for their printing orders and choose the services according to their needs.

**Problem with payment and order tracking:** Traditional printing shops do not allow customers to preview their document before printing. If there is an error in a document, the customer has to go back to correct it, wasting both time and money. Sometimes the printing quality is affected due to the document not being formatted correctly, which leads to unsatisfactory service for the customer. An online printing system can solve this problem,

where customers can preview their document after uploading it and make the necessary edits. The system can have inbuilt editing tools, allowing customers to make changes as per their requirements and make the printing process more convenient.

**Problem with printing quality and customer satisfaction:** Payment process is also a significant problem in traditional printing shops. Most shops only accept cash payments, which causes inconvenience to customers. Due to the lack of digital payment options, many customers are unable to avail the services that suit their needs. Moreover, customers have to visit the shop again and again to know the status of their order, which wastes their time. If an online printing system is created, various digital payment options can be added to it, such as debit/credit cards, UPI, net banking and wallet payments. This will make it easier for customers to pay for their orders and they can track the status of their orders in real-time.

**Advantages of online printing service:** Printing quality related problems are often seen in traditional printing shops. Many shops use old or low-quality printers, which leads to poor printing resolution. Also, many times customers are not given the option of the right paper type or ink quality, which leads to suboptimal printing results. If an online platform is developed, various printing options can be made available to the customer, such as high-quality papers, different sizes and color options. This will allow the customer to choose the printing option according to their budget and requirements, increasing their satisfaction.

**Digital order management and data security:** Online printing service is more convenient and efficient than the traditional system. Through this service, customers can upload their documents anytime and from anywhere, eliminating the need to visit the shop. This service can prove to be especially beneficial for students, business professionals and researchers who often need to get documents printed. Apart from this, integrated order tracking, digital payments and custom printing options can be provided in this system, which will give a better customer experience.

**Time saving and improved efficiency:** It is very important to keep the customer's data safe in the online printing system. In traditional shops, many times the problem of documents getting lost or printed incorrectly arises, which leads to a breach of privacy. If an online printing platform is developed, encryption techniques can be used for data security, so that the customer's information remains safe. Apart from this, customers can be provided with a digital record of their order, so that they can access their document again in the future.

### **3.3 Requirements Specification.**

**System Requirements and Objectives:** Developing an online printing system requires certain requirements to be met. The main objective of this system is to allow users to upload, edit, order, make payments and track the order status online. Moreover, this system will provide a separate dashboard for each user and shop so that they can manage their orders and payments systematically. This system will be designed to provide high-quality printing service to users, including features such as printing options, page count, color selection and formatting.

**Software Requirements:** Different types of software will be required to develop this system. HTML, CSS, JavaScript and Bootstrap will be used for the frontend, giving the website a professional and user-friendly design. PHP will be used for the backend and MySQL for the database so that users' data can be stored securely. Razorpay Gateway will be used to operate the payment system securely and smoothly.

**Hardware Requirements:** There are certain hardware requirements that need to be met to run the system smoothly. A web server will be required, which can handle high traffic and function smoothly. The server must have a minimum of 8GB of RAM, i5 processor or better, and SSD storage to effectively manage the database and file uploading. From the user side, this system will work on any modern web browser like Google Chrome, Mozilla Firefox, Microsoft Edge, etc.

**User Requirements:** Users will have to register an account to use this system. For this, they will have to fill in their name, email, password, and other required details. Users can edit their documents after uploading them and choose different printing options. Apart from this, they will be provided with the facility to make digital payments, allowing them to easily pay through different payment options. Users can also track the status of their order and contact the shop if needed.

**Shopkeeper Requirements:** Each shop owner will be provided with a separate login dashboard where they can view and fulfill their orders. They will receive an email and notification when a new order is received. They can update the order status so that the customer gets updates in real-time. Shop owners will have the facility to change printing settings, chat with customers, and add or remove printing options.

**Security Requirements:** Security will be a key factor in this online system. SSL certificates will be used to secure users' data. Passwords will be protected by hashing and encryption

techniques to keep it secure. Security measures like 2-factor authentication and OAuth 2.0 will be implemented to make the payment system more secure. Encrypted storage will be used to protect user's personal documents, preventing any unauthorized user from accessing the data.

**Functional Requirements:** This system will provide a variety of functionalities, including:

- User and shopper login and registration
- Document upload and preview
- Document editing and formatting options
- Printing options like selection of color, size, and quality
- Real-time tracking of orders
- Integration of online payment system
- Customer support and order notification system

**Non-functional requirements:** This system needs to be user-friendly, secure, and fast. Caching technology will be used to maintain the speed of the site. This system will work smoothly on various devices, which will include desktops, laptops, and mobile devices. The UX/UI design will be developed in such a way that users get a seamless experience.

**Database Design and Structure:** The database of this system will consist of various tables, such as:

- Users Table: To store user information.
- Shopkeepers Table: To store shopkeeper information.
- Orders Table: To save all the information related to printing orders.
- Payments Table: To store payment details.
- Documents Table: To track uploaded documents. The database will be designed in such a way that it can handle high traffic and data can be accessed quickly.

**System Stability and Scalability:** This system will be scalable to add more customers and shopkeepers in the future. It will be designed in such a way that it works smoothly even when there is high traffic. Performance will be improved by using Load Balancing and Cloud Storage techniques.

**Order Management System:** The system will provide a robust order management system where users can track their orders. Order tracking will include status updates, such as “processing,” “printing,” and “delivered.” Users can view their order details, check payment status, and contact the support team if any issues arise. The system will also send automated email and SMS alerts to keep users informed about the status of their orders.

**Real-Time Updates and Notification System:** A real-time update system will be developed for both the user and the shopkeeper. When the user uploads documents, makes payments, or makes any changes, his/her details will be updated immediately. Similarly, when the shopkeeper accepts, fulfills, or rejects an order, the user will receive notifications. The system will use WebSockets and AJAX technology to update data without refreshing the page.

**Payment and Invoice System:** The system will facilitate online payments through the Stripe Payment Gateway. Users can use credit cards, debit cards, UPI, and other digital payment methods. Once the payment is successful, an automated invoice will be generated, which users can download. SSL encryption and 2FA (Two-Factor Authentication) will be used for payment security so that no unauthorized transactions take place.

### **3.3 Planning and Scheduling**

The development of this online printing system has been divided into various phases so that it can be completed in a systematic manner. In the initial phase, requirements analysis and system design will be done. After this, database structure and backend development will be done. In the next phase, user interface and frontend development will take place. In the final phase, testing and deployment will be done. Each phase will be completed in a stipulated time frame so that the entire system can be implemented on time.

A fixed time frame has been set for the completion of each task. 2 weeks have been set for requirements analysis, 4 weeks for database and backend development, 3 weeks for frontend development, and 3 weeks for testing and deployment. This scheduling will ensure that the project progresses smoothly and no task is delayed.

The tasks have been divided into different teams to run the project smoothly. Backend developers will work on the database and server-side scripting, frontend developers will develop the user interface and user experience (UI/UX), and the QA team will test the entire system. This type of work plan will ensure that each team performs its tasks in the best possible way.

A risk management plan is designed to anticipate potential problems that may arise during the project. For example, a backup system will be implemented in case of data security issues, a quick fix plan will be created in case of errors in the payment gateway, and optimized coding and caching techniques will be used to solve the problem of increased load time.

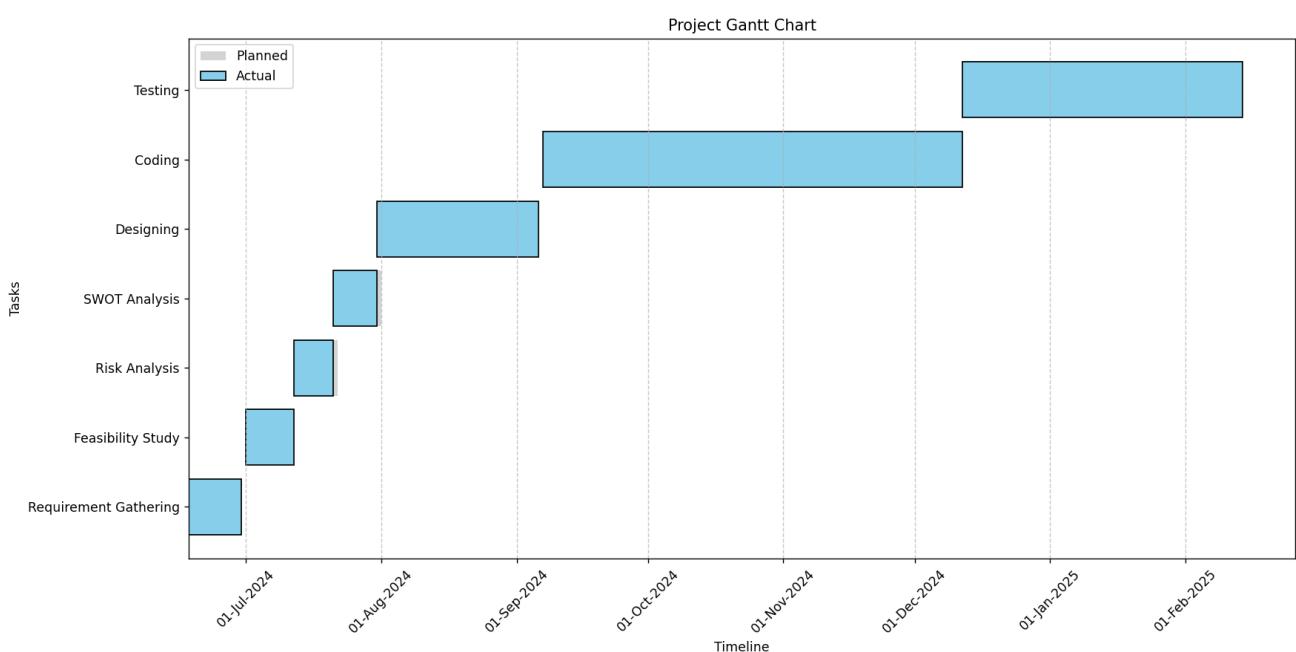
Weekly review meetings will be held to keep track of the project progress. Each team will submit its progress report and appropriate steps will be taken to resolve any issues if they arise. This monitoring will ensure that no task is behind schedule and the project moves forward according to its goals

The technical resources required to successfully complete the project will be properly managed. The capacity of the server, database, and cloud storage has already been estimated so that the website can function smoothly even in case of high traffic. Also, the tools and frameworks to be used in the project such as HTML, CSS, JavaScript, PHP, and MySQL have already been determined. Security protocols will also be implemented for the project to ensure privacy and security of the data. Selection of the right technical resources and proper management will improve the speed and efficiency of the project.

## Gantt Chart:

A Gantt chart is a visual representation of the project schedule, showing the start and end dates for each task along with their dependencies. It is a powerful tool for tracking progress, identifying potential delays, and ensuring that the project stays on schedule.

Sr. No	Task	Plan Start Date	Plan End Date	Actual Start Date	Actual End Date	Working Days
1	Requirement Gathering	18/06/2024	30/06/2024	18/06/2024	30/06/2024	10
2	Feasibility Study	01/07/2024	12/07/2024	01/07/2024	12/07/2024	10
3	Risk Analysis	13/07/2024	22/07/2024	12/07/2024	21/07/2024	8
4	SWOT Analysis	23/07/2024	01/08/2024	21/07/2024	31/07/2024	8
5	Designing	02/08/2024	06/09/2024	31/07/2024	06/09/2024	25
6	Coding	07/09/2024	12/12/2024	07/09/2024	12/12/2024	90
7	Testing	13/12/2024	14/02/2025	12/12/2024	14/02/2025	30



## 4. System Design

### 4.1 Data Design (Table Design)

The SQL database plays a vital role in the Online Printing System's backend by storing, organizing, and accessing data related to clients, shopkeepers, shops, documents, transactions, and other printing-related information in a structured manner. This database is created with tables that have rows and columns to organize and manage key data for sending documents operations.

The database structure is carefully designed to maintain data accuracy, facilitate secure transactions, and adhere to data privacy regulations, enhancing the system's dependability and efficiency. The SQL database improves user experience, simplifies document management processes, and supports informed decision-making by providing a centralized data storage for all order-related activities.

#### List of Tables with Attributes and Constraints:

The following is the list of tables used in the project of “Online Printing System”.

#### Database Name: Printify

Table name: Clients

Name	Type	Null	Key	Default	Extra
client_id	int(11)	No	PRI	None	AUTO_INCREMENT
name	varchar(100)	No		None	
username	varchar(100)	No	INDEX	None	
email	varchar(100)	No	INDEX	None	
password	varchar(255)	No		None	
phone	varchar(15)	Yes		NULL	
Created_at	timestamp	No		Current_timestamp()	

Table name: shopkeepers

Name	Type	Null	Key	Default
shopkeeper_id	int(11)	No	PRI	None
Shopkeeper_name	Varchar(255)	No		None
Username	Varchar(255)	No		None
email	Varchar(100)	No		None
phone	Varchar(15)	Yes		NULL
password	varchar(255)	No		None
Created_at	timestamp	No		Current_timestamp()
status	enum('active','offline')	Yes		active

Table name: Shops

Name	Type	Null	Key	Default
shop_id	int(11)	No	PRI	None
shop_name	varchar(255)	No		None
Shop_address	text	No		None
Shopkeeper_name	varchar(255)	No		None
Shopkeeper_id	int(11)	No	INDEX	None
status	varchar(20)	Yes		offline
latitude	decimal(10,7)	No		None
longitude	decimal(10,7)	No		None

Name	Type	Null	Key	Default
price_bw	float	Yes		0
price_color	float	Yes		0

Table name:Documents

Name	Type	Null	Key	Default
document_id	int(11)	No	PRIMARY	None
client_id	int(11)	No	INDEX	NULL
shop_id	int(11)	No	INDEX	None
shopkeeper_id	int(11)	No	INDEX	None
file_name	varchar(255)	No		None
copies	int(11)	No		1
size	varchar(50)	No		A4
print_type	enum('black_white','color')	No		Black_white
verification_code	varchar(50)	No		None
uploaded_at	timestamp	No		current_timestamp()
order_date	datetime	Yes		current_timestamp()
order_status	enum('printing','printed')	Yes		printing
order_id	Varchar(255)	No		None

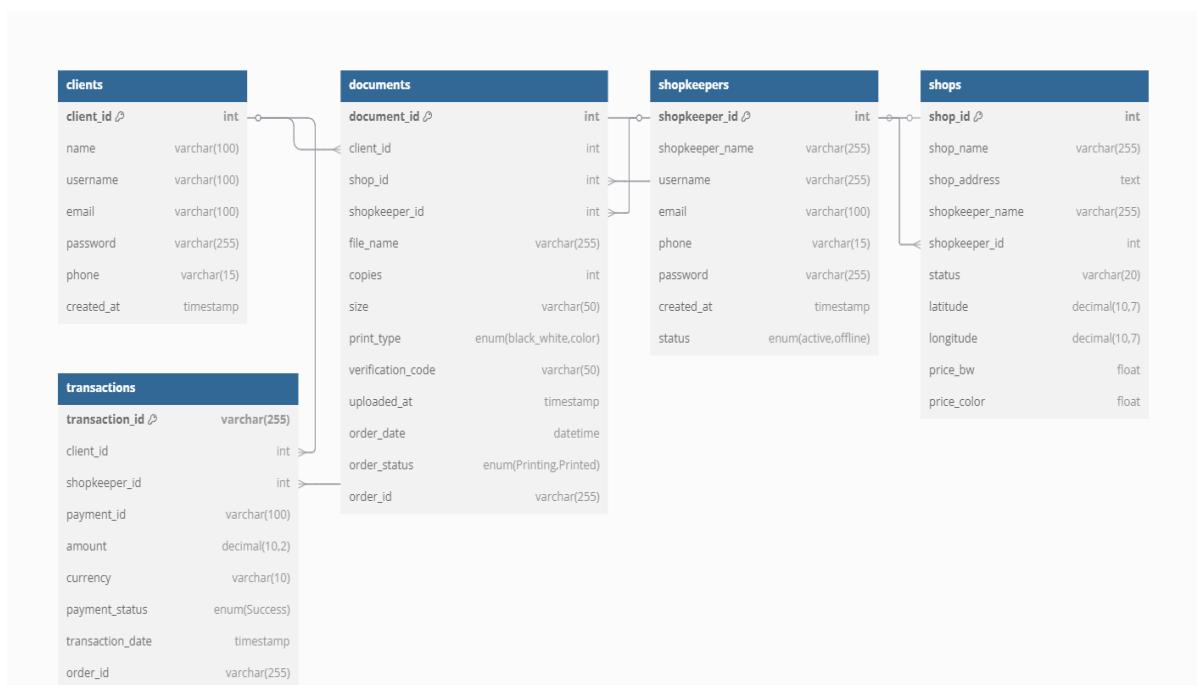
Table name: Transactions

Name	Type	Null	Key	Default
transaction_id	int(11)	No	PRIMARY	None
client_id	int(11)	No	INDEX	NULL
shopkeeper_id	int(11)	YES	INDEX	NULL
payment_id	varchar(255)	No		None
amount	decimal(10,2)	No		None
currency	varchar(255)	No		INR
payment_status	enum('success')	No		success
transaction_date	timestamp	No		current_timestamp()
order_id	varchar(255)	No		None

#### 4.1.1 Schema Design

Designing a robust database schema for an Online Printing System (OPS) involves several essential principles to ensure data consistency, security, and performance. Understanding the system requirements, such as various user roles (clients, shopkeepers, shops) and their respective data access levels, is the first critical step. Entity-Relationship Diagrams (ERDs) help visualize key entities like Clients, document, transaction, shopkeepers, and their relationships, which is crucial for schema planning.

Maintaining data integrity is crucial, and this can be achieved by using constraints (such as NOT NULL, UNIQUE, and CHECK) to enforce valid data entries. Validation rules should be applied at both the application and database levels to ensure that user inputs meet the system's criteria (e.g., bid amounts must be higher than the current highest bid).

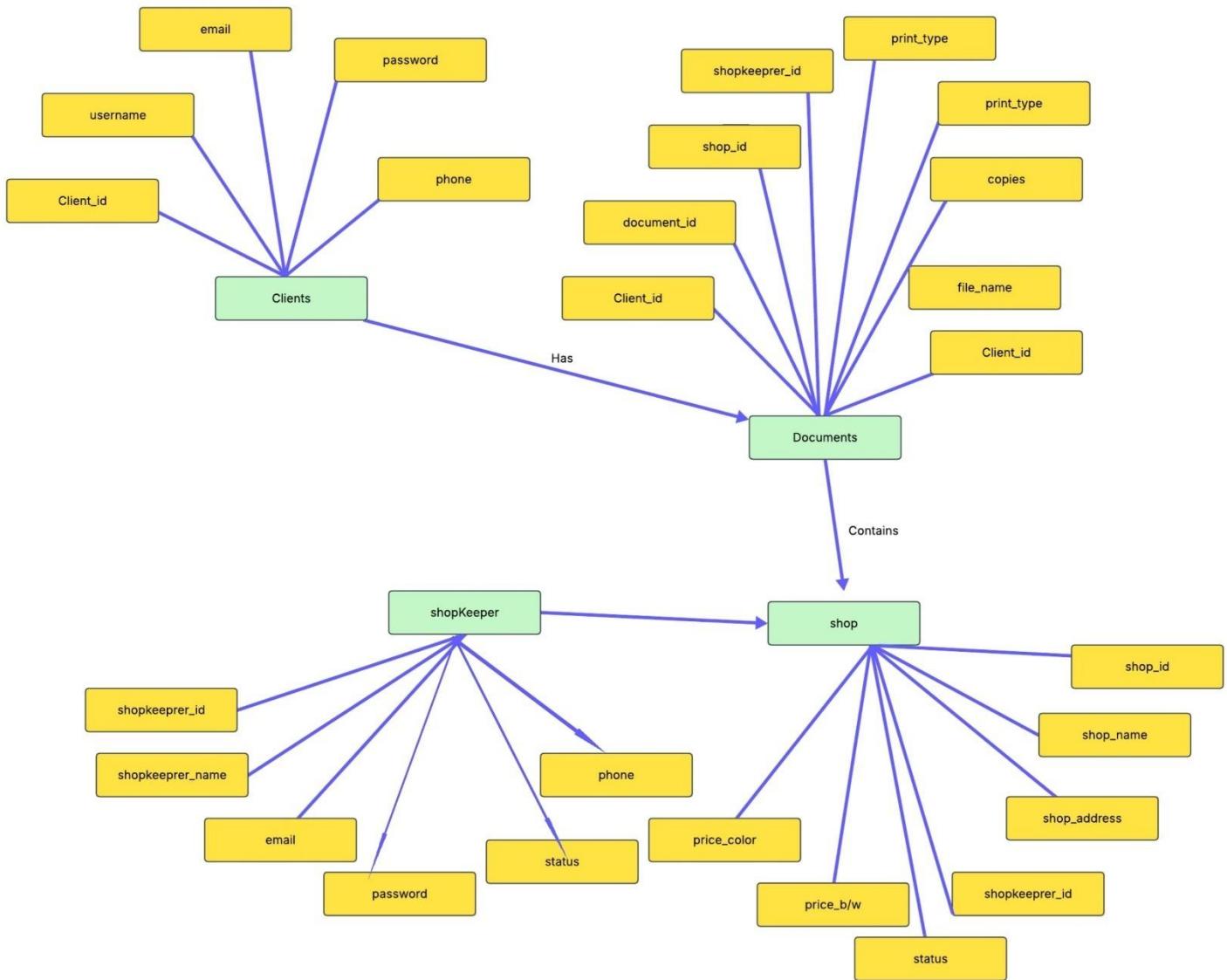


#### 4.2 Diagrams

Design diagrams are essential tools in the **Online Printing System (Printify)** development process, facilitating the visualization, planning, and implementation of the database architecture. They provide clear and organized representations of the system's structure, processes, and interactions between different entities, ensuring that all stakeholders understand the flow and relationships within the system. Below is an overview of the key diagrams and their relevance to this project.

#### 4.2.1 E-R Diagram

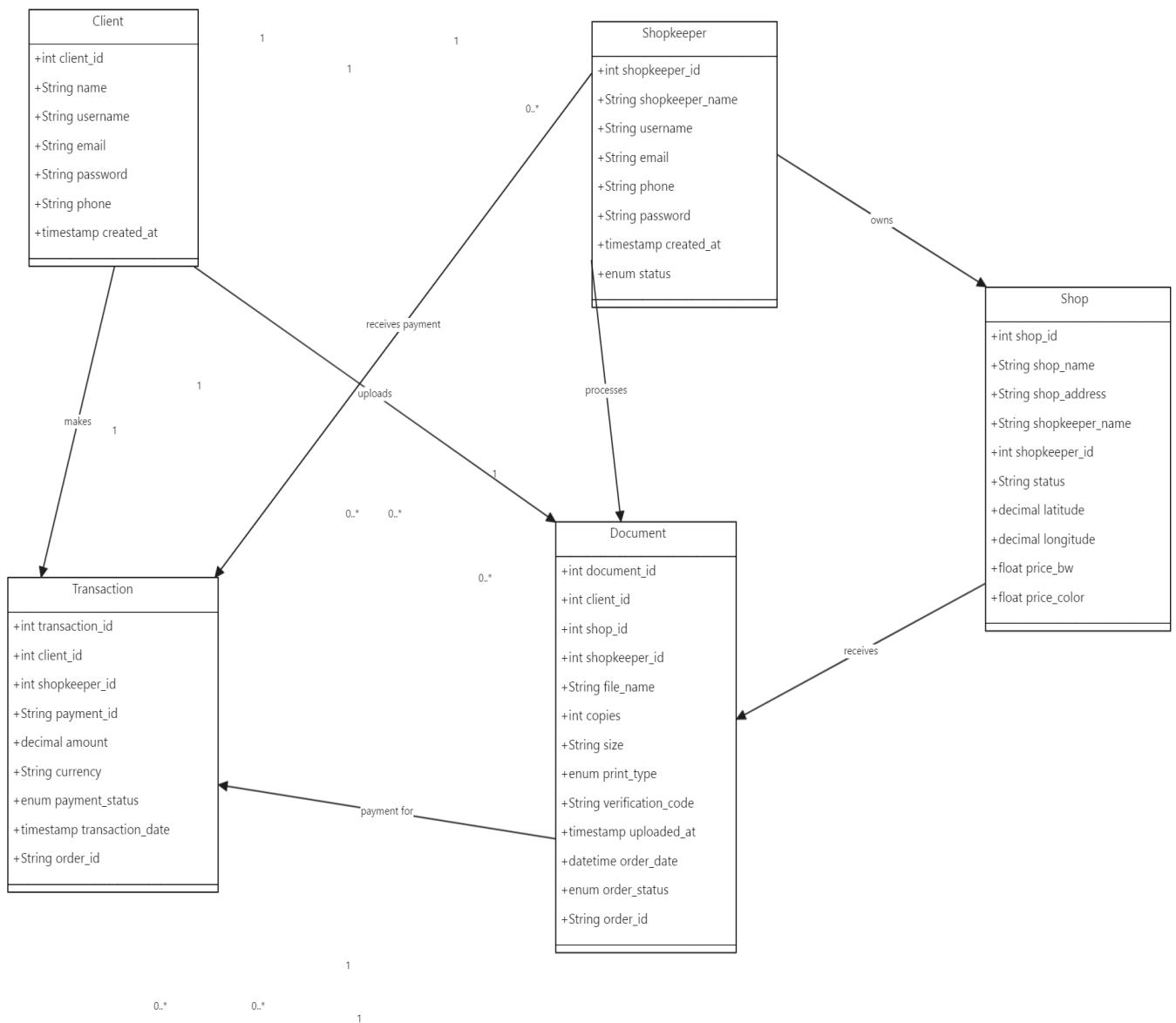
An ER diagram really shows how data is structured and interrelated within our **Online Printing System (Printify)**. The main entities will include **Users**, **Shopkeepers**, **Orders**, **Documents**, **Payments**, and **Feedback**. Users register as either **Customers** or **Shopkeepers**; then, **Customers upload documents for printing, while Shopkeepers manage orders and process print requests**. The system keeps a very detailed track of the **order and payment history**, making it as transparent and efficient as possible.



#### 4.2.2 Class Diagram:

A class diagram represents the static structure of the online auction system, illustrating the key classes, their attributes, methods, and relationships. It provides a blueprint for the system's object-oriented design, helping developers understand the system's architecture and how different components interact.

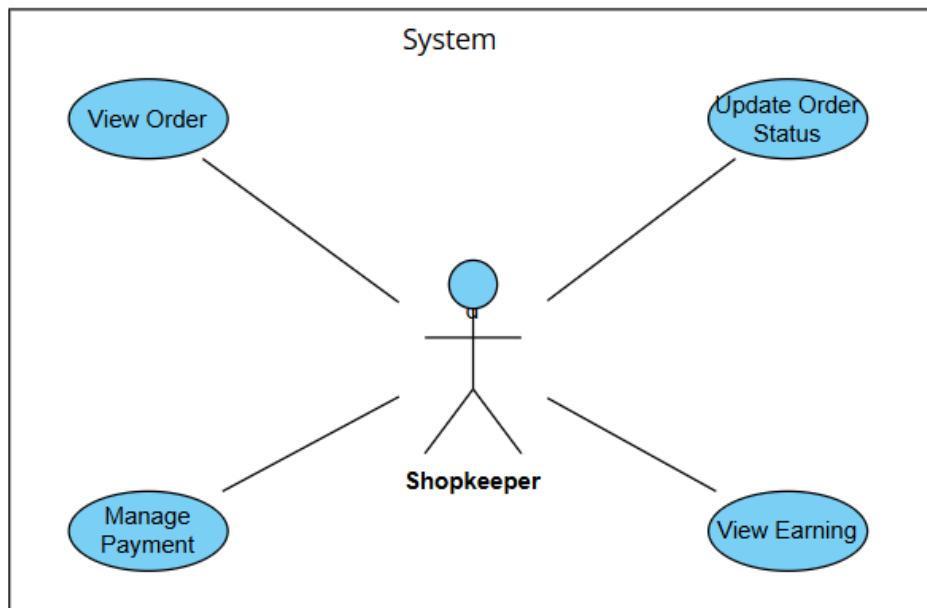
This is the class Diagram representing The Users, Auctions, Bids And Payments Classes.



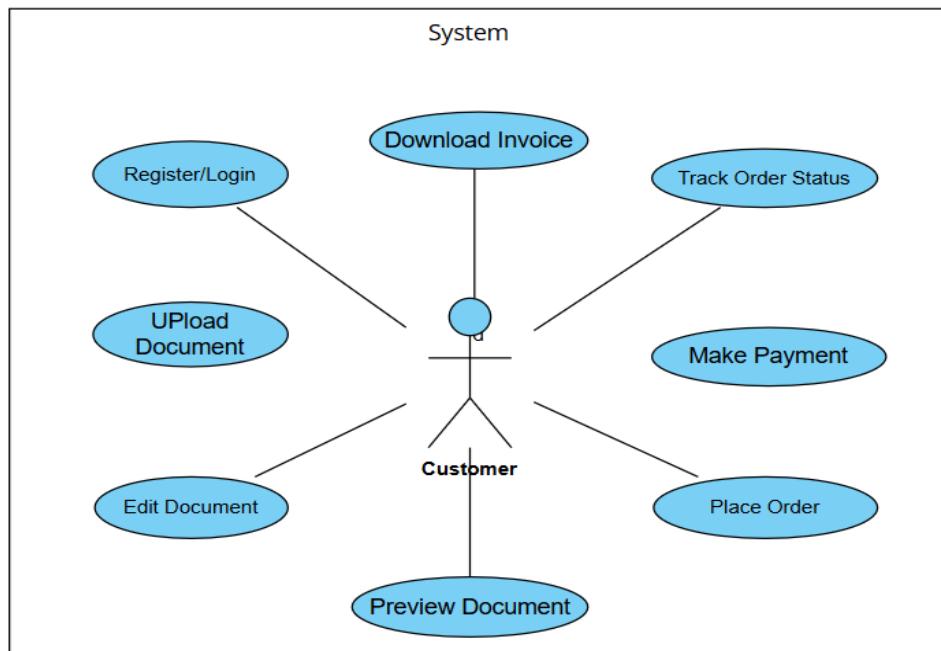
## Use Case Diagram

Use Case Diagram: Use case diagrams represent the system's functional requirements by illustrating the interactions between users (actors) and the system. In an online printing system, key actors might include Users, Shopkeeper, Login, and Manage orders. Use cases depict the functionalities available to each actor, such as Managing orders, managing order history, and processing transaction. This diagram helps in understanding the system's behaviour from the user's perspective, defining user roles, and ensuring all necessary functions are addressed.

Shopkeeper use case diagram

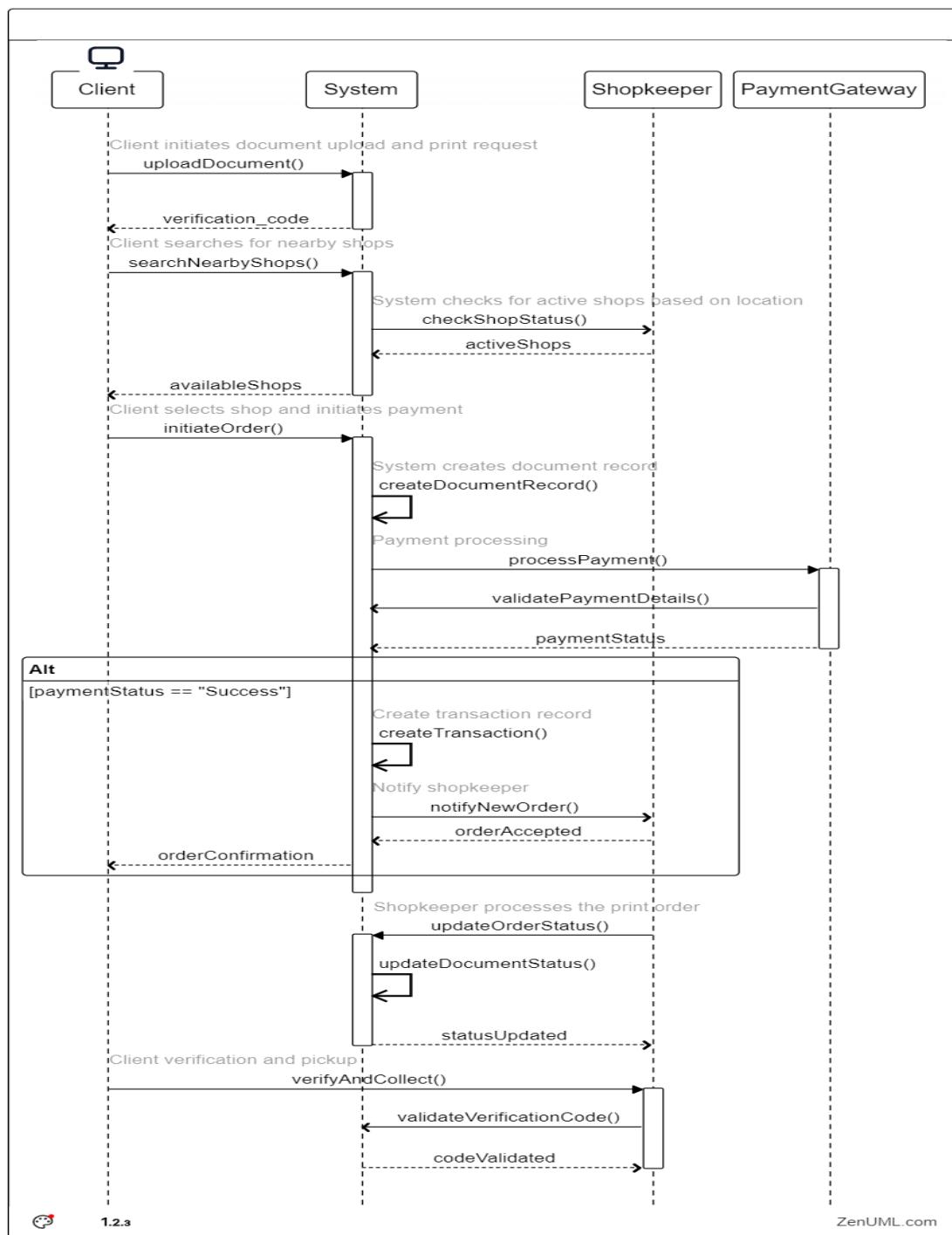


Customer use case diagram



#### 4.2.4 Sequence Diagram

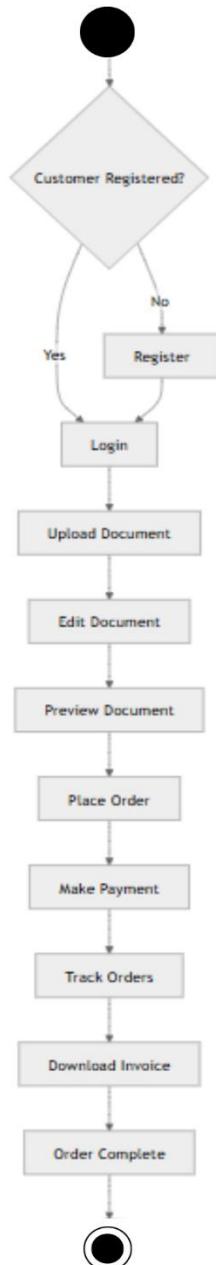
With the sequence diagram for AuctionHub, it shows how users interact with system components during different processes such as auction creation, bidding, winner declaration, and payment completion. The diagram specifies users such as Buyers, Sellers, and Admins. The sequence diagram logically follows the process from event sequences, how information is transferred, and different parts of the system work so that they can present a more seamless user experience.



#### 4.2.5 Activity Diagram:

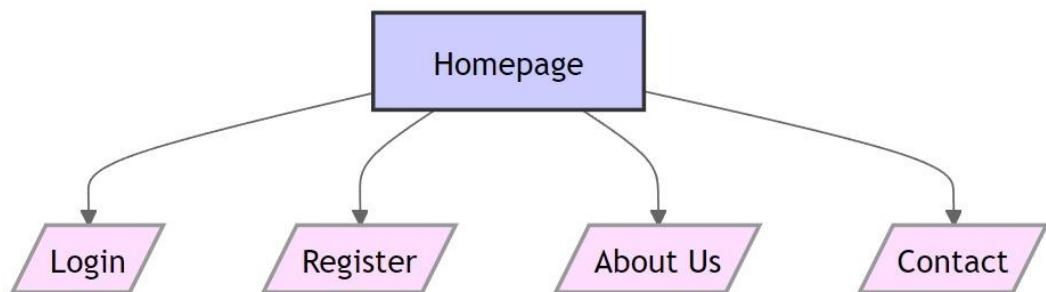
Activity Diagram: The Activity Diagram represents the workflow of the system, detailing the sequence of activities and decision points involved in a particular process. For example, it can illustrate the steps involved in User/customer and shopkeeper registration or the process of handling orders. This diagram helps in understanding the process flow and identifying potential areas for improvement.

Customer Activity Diagram:



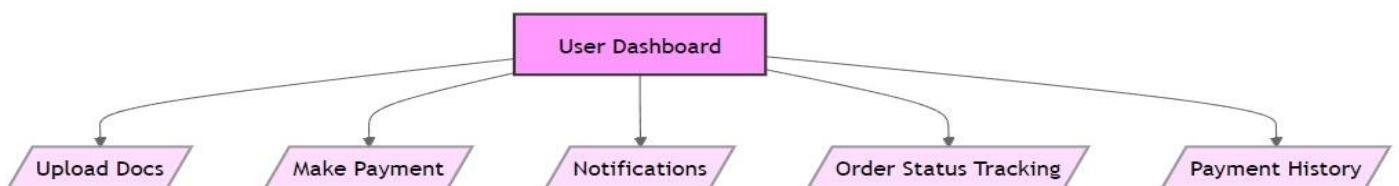
#### 4.2.6 Menu Tree

A menu tree is a hierarchical representation of options available in a software application, organized in a way that allows users to easily navigate through various functions. For an Online Printing System, the menu tree is designed to address the diverse needs of the users/customers, including Shopkeeper, Admin.

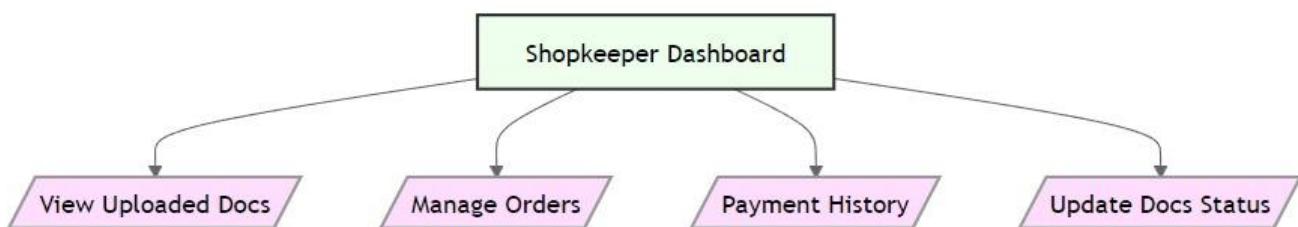


Key Elements of a Management System Menu Tree

**Customer Dashboard:** The entry point of the system, providing an overview of key metrics such as the number of active orders, recently placed orders, order statuses (e.g., in progress, completed, canceled), pending actions (such as document uploads or payments), notifications regarding order updates, and invoices. It serves as a quick summary of the customer's current order activities and system interactions.



**Shopkeeper Dashboard:** The entry point of the system, providing an overview of key metrics such as the number of active print orders, new orders awaiting action, order statuses (e.g., in progress, completed, pending), pending tasks (such as updating order statuses), notifications regarding new orders or payment confirmations, and daily earnings reports. It serves as a quick summary of the shopkeeper's current tasks and overall operational status.



### 4.3 User interface design

Designing a user interface (UI) for an online auction system should prioritize simplicity, ease of use, and security. The UI must be intuitive, allowing various users—such as buyers, sellers, and administrators—to navigate effortlessly and perform their tasks without confusion. Key elements like clean navigation menus, consistent design patterns, and responsive layouts are essential to enable users to place bids, list items, and manage auctions efficiently.

Accessibility is another important consideration. Features like adjustable text sizes, high-contrast modes, and keyboard navigation should be included to ensure the system is usable by people with varying abilities, improving inclusivity and user satisfaction.

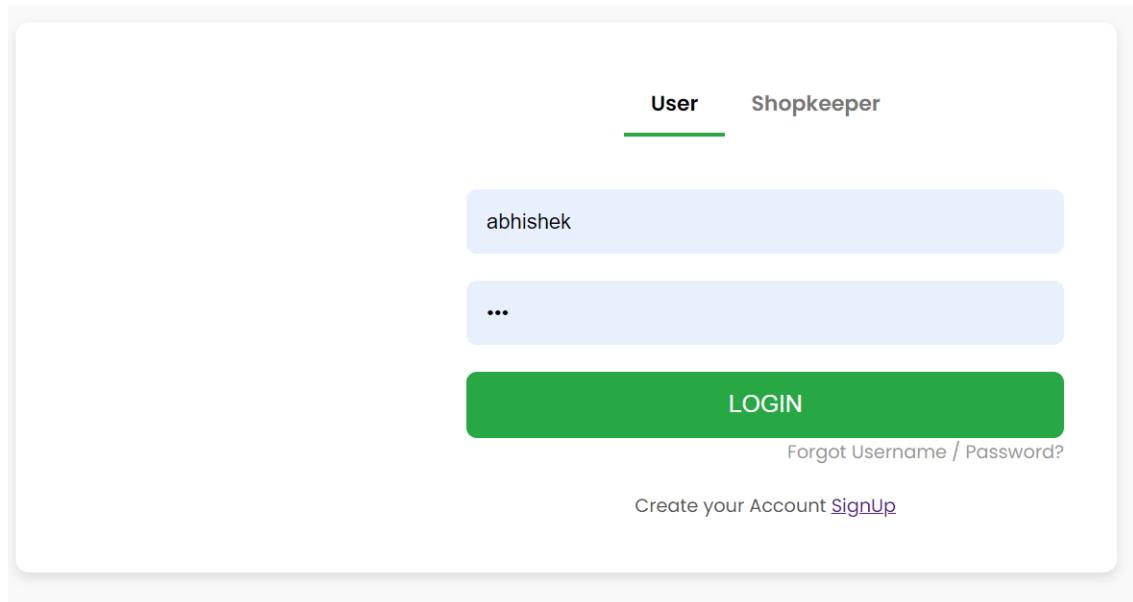
Security is crucial in an auction system, where financial transactions and personal information are handled. The interface must include secure access controls, clear feedback mechanisms (such as notifications, error messages, and status updates), and clear instructions to guide users through each stage of the bidding and selling process.

A well-designed UI in an online auction system will enhance the overall user experience, reduce the learning curve for new users, and increase engagement. By optimizing the design for usability and security, the system can ensure smoother transactions, higher user retention, and a seamless auction experience for all participants.

Home Page:

The screenshot shows the homepage of a website called "Printify". The header features the "Printify" logo and a navigation bar with links for Home, Features, Contact, About, and Login/Register. The main section is titled "Print Store" with the tagline "EasyXerox provides Safe & Secure printouts". On the left, there's a large call-to-action button with a cloud icon and the text "Upload your files". Below it, a note says "We support all popular formats like PDF, JPG, PNG, JPEG etc." and includes a "Drop files here" placeholder and a green "Upload your files" button. At the bottom of this section, small text indicates "Max file size: 25 MB • Max files: 15". To the right, there's a colorful illustration of two people in a printing studio setting, standing next to a computer monitor displaying a color calibration chart, a printer, and some filing cabinets.

Login Page:



User and shopkeeper Registration Page:

Two side-by-side registration forms. The left form is titled "User Registration" and includes fields for "Full Name" (containing "abhishek"), "Phone Number", and an ellipsis (...). A green "Register" button is at the bottom. Below it, a link says "If you have an account, [LogIn](#)". The right form is titled "Shopkeeper Registration" and includes fields for "Full Name", "Email", "Phone Number", "Shop Name", "Shop Address", "Password", and "Re-Password". A green "Register" button is at the bottom. Below it, a link says "If you have an account, [LogIn](#)".

## Client and upload Dashboard:

The screenshot shows the Printify client interface. On the left, a sidebar menu includes 'Dashboard', 'Forms & Tables', 'Upload Documents' (which is highlighted in green), 'Order History', 'Chart & Maps', 'Transaction History', and 'Maps'. The main area is titled 'Upload Documents' with the sub-instruction 'Send Documents For Printing'. It features a 'Select Shop' dropdown set to 'NX', a 'Select Document' input field with 'Choose File' and 'No file chosen', a 'Number of Copies' input set to '1' and a 'Size' dropdown set to 'A4', and a 'Print Type' dropdown set to 'Color'. A large green 'Proceed To Payment' button is at the bottom. To the right, a 'Shop Description' panel shows details for 'Riddhi Xerox' (Shop Name, Shopkeeper Abhishek, Address Nkc Malad, Print Price B/W ₹5 | Colour ₹10) and a map of the area around the shop.

## Order History:

The screenshot shows the 'Orders' section of the Printify client interface. The sidebar remains the same as the previous screenshot. The main area is titled 'Orders' with a search bar. Two order cards are listed: 1) Document: 1739799164\_rigester.pdf, Shop: Riddhi Xerox, Copies: 1, Size: A4, Print Type: Color, Verification Code: 6255, status: Printed, timestamp: 2025-02-17 19:02:44. 2) Document: 1739798508\_pro1.jpg, Shop: Riddhi Xerox, Copies: 1, Size: A4, Print Type: Color, Verification Code: 7654, status: Printing, timestamp: 2025-02-17 18:51:48.

## Transaction History

The screenshot shows the Printify Transaction History page. At the top, there's a header with the Printify logo, a user profile for 'Rahul', and a search bar labeled 'Search transactions...'. Below the header is a table titled 'Your Transaction History' with columns: ORDER ID, TRANSACTION ID, SHOP, PAYMENT ID, AMOUNT, CURRENCY, PAYMENT STATUS, and DATE. Two transactions are listed:

ORDER ID	TRANSACTION ID	SHOP	PAYMENT ID	AMOUNT	CURRENCY	PAYMENT STATUS	DATE
#1763	11759	Riddhi Xerox	73901	₹10.00	INR	Success	2025-02-17 19:02:44
#3242	30552	Riddhi Xerox	50611	₹5.00	INR	Success	2025-02-17 18:51:48

On the left sidebar, under 'Transactions', 'Transaction History' is selected. Other sidebar items include Dashboard, Forms & Tables, Orders, Chart & Maps, and Maps.

## Shopkeeper Dashboard:

The screenshot shows the Riddhi Xerox Shopkeeper Dashboard. At the top, there's a header with the Printify logo, the shop name 'Riddhi Xerox', and a user profile. The dashboard has a sidebar with 'Actions' (Orders, QR, Settings) and 'Views' (Orders History, Transaction History). A message at the top says 'Welcome, abhishek'. The main area features four summary cards: 'Total Orders' (19), 'Today's Orders' (0), 'Total Earnings' (₹129.00), and 'Today's Earnings' (₹0.00). Below these is a section titled 'Sales Analytics' with three charts: a monthly sales bar chart (value 120), a yearly sales line chart (value 130), and a daily sales line chart (value 100). A banner at the bottom left says 'Logged in as: Shopkeeper'.

## QR Page:

Printify

Riddhi Xerox

Shop QR Code

**RIDDHI XEROX**

**ABHISHEK**

ACTIONS

- Orders >
- QR >
- Settings >

VIEWS

- Orders History
- Transaction History

Logged in as: Shopkeeper

Generate QR Code Download QR Code

## Order History:

Printify

Riddhi Xerox

Orders History

Order Id	Client Name	Document	Copies	Size	Print Type	Verification Code	Order Date
#9495	Abhishek Bhakta	<a href="#">1739882638_Screenshot 2024-09-12 085211.png</a>	1	A4	Color	3283	2025-02-18 18:13:58
#6521	Abhishek Bhakta	<a href="#">1739881624_1_gaSih_PKp8RuM0NXTT-QSA.png</a>	1	A4	Color		2025-02-18 17:57:04
#8935	Abhishek Bhakta	<a href="#">1739881624_Screenshot 2024-09-12 085148.png</a>	1	A4	Black & White		2025-02-18 17:57:04
#5869	Abhishek Bhakta	<a href="#">1739881556_1_gaSih_PKp8RuM0NXTT-QSA.png</a>	1	A4	Color		2025-02-18 17:55:56
#6369	Abhishek Bhakta	<a href="#">1739881046_Screenshot 2024-09-12 085148.png</a>	1	A4	Black & White		2025-02-18 17:47:26
#2633	Abhishek Bhakta	<a href="#">1739881046_Screenshot 2024-09-12 085159.png</a>	1	A4	Color		2025-02-18 17:47:26
#8088	Abhishek Bhakta	<a href="#">1739880842_Screenshot 2024-09-12 085159.png</a>	1	A4	Color		2025-02-18 17:44:02

Actions

- Orders >
- QR >
- Settings >

Views

- Orders History
- Transaction History

Logged in as: Shopkeeper

## Transaction History:

Order ID	Transaction ID	Payment ID	Amount	Status	Date
#9495	41258	27608	₹10.00	Success	2025-02-18 18:13
#6521	16626	98568	₹2.00	Success	2025-02-18 17:57
#8935	38529	37199	₹2.00	Success	2025-02-18 17:57
#5869	52406	15526	₹2.00	Success	2025-02-18 17:55
#6369	55790	36582	₹2.00	Success	2025-02-18 17:47
#2633	85553	79117	₹2.00	Success	2025-02-18 17:47
#8088	52662	90798	₹2.00	Success	2025-02-18 17:44
#2621	82253	98099	₹2.00	Success	2025-02-18 17:44
#2392	58921	81085	₹10.00	Success	2025-02-18 16:44
#4211	29258	70252	₹10.00	Success	2025-02-18 16:33
#5773	54781	58211	₹10.00	Success	2025-02-18 16:26

## Profile Update Page:

**Personal Info**

Name: Abhishek Bhakta

Email: abhi@gmail.com

Phone Number: 8097319664

**Update Personal Info**

**Security Credentials**

Username: abhishek

Password: ...

**Update Security Credentials**

## 5. IMPLEMENTATION AND TESTING

### 5.1 Code

System coding involves implementing the online auction system based on its design and requirements. Key considerations include selecting the appropriate programming languages and frameworks, writing clean and modular code, ensuring security protocols are in place, handling data securely, performing extensive testing, and documenting the code comprehensively. Collaboration among developers, iterative testing, seamless deployment, and continuous improvement are critical components for building and maintaining a successful online auction system

Code:

```
Shopkeeper_dashboard.php
<?php
include 'features/fetch.php';
?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8" />
<meta http-equiv="X-UA-Compatible" content="IE=edge" />
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no"
/>
<meta name="description" content="" />
<meta name="author" content="" />
<title>Dashboard - Shopkeeper</title>
<link href="https://cdn.jsdelivr.net/npm/simple-datatables@7.1.2/dist/style.min.css"
rel="stylesheet" />
<link href="css/styles.css" rel="stylesheet" />
<link href="css/style.css" rel="stylesheet" />

<script src="https://code.jquery.com/jquery-3.6.0.min.js"></script>
```

```

        <script src="https://use.fontawesome.com/releases/v6.3.0/js/all.js"
crossorigin="anonymous"></script>

<script src="https://cdn.jsdelivr.net/npm/chart.js"></script>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.3/dist/js/bootstrap.bundle.min.js"
crossorigin="anonymous"></script>

<script src="js/script.js" ></script>

</head>

<body class="sb-nav-fixed">

    <nav class="sb-topnav navbar navbar-expand navbar-dark " style="background-color:rgb(255, 255, 255);">

        <!-- Navbar Brand-->

        <a class="navbar-brand ps-3" href="dashboard.php" style="background-color:#4CAF50; color:white; padding-top:15px; padding-bottom:15px; padding-left:50px;">Printify</a>

        <!-- Sidebar Toggle-->

        <button class="btn btn-link btn-sm order-1 order-lg-0 me-4 me-lg-0" id="sidebarToggle" href="#"><i class="fas fa-bars" style="color:#4CAF50;"></i></button>

        <h2 style="color:#004526;"><?php echo htmlspecialchars($shop_name); ?></h2>

        <form class="d-none d-md-inline-block form-inline ms-auto me-0 me-md-3 my-2 my-md-0">

            </form>

        <!-- Navbar-->

        <ul class="navbar-nav ms-auto ms-md-0 me-3 me-lg-4">

            <li class="nav-item dropdown" >

                <a class="nav-link dropdown-toggle" id="navbarDropdown" href="#" role="button" data-bs-toggle="dropdown" aria-expanded="false" style="color:#4CAF50;"><i class="fas fa-user fa-fw" style="color:#4CAF50;"></i></a>

                <ul class="dropdown-menu dropdown-menu-end" aria-labelledby="navbarDropdown">

                    <li><a class="dropdown-item" href="profile.php">Settings</a></li>
                    <li><hr class="dropdown-divider" /></li>
                    <li><a class="dropdown-item" href="logout.php">Logout</a></li>

                </ul>

            </li>

        </ul>

```

```

</nav>

<div id="layoutSidenav">
    <div id="layoutSidenav_nav" >
        <nav class="sb-sidenav accordion sb-sidenav-dark" id="sidenavAccordion">
            <div class="sb-sidenav-menu" style="background-color:white;">
                <div class="nav" >
                    <a class="nav-link" href="dashboard.php" style="color: #4D5D53; font-weight: bold;" >
                        <div class="sb-nav-link-icon" style="color:#8F9779;"><i class="fas fa-tachometer-alt"></i></div>
                        Dashboard
                    </a>
                    <div class="status" style="color:#004953; margin-top: 5px; margin-bottom:25px;font-weight:bold;">
                        <span style="margin-left: 15px; margin-right: 5px;">Status:</span>
                        <label class="toggle-switch">
                            <input type="checkbox" id="statusToggle" onchange="toggleStatus()" <?= ($shop_status === 'online') ? 'checked' : '' ?> />
                            <span class="slider"></span>
                        </label>
                        <span id="shop_status"><?= ucfirst($shop_status); ?></span>
                    </div>
                    <div class="sb-sidenav-menu-heading" style="background-color:#4CAF50; color:white; padding-top:8px; padding-bottom:8px;">Actions</div>
                    <a class="nav-link collapsed" href="orders.php" >
                        <div class="sb-nav-link-icon"><i class="fas fa-shopping-cart"></i></div>
                        Orders
                        <div class="sb-sidenav-collapse-arrow"><i class="fas fa-angle-down"></i></div>
                    </a>
                    <a class="nav-link collapsed" href="#" >

```

```

<div class="sb-nav-link-icon"><i class="fas fa-qrcode"></i></div>
QR
<div class="sb-sidenav-collapse-arrow"><i class="fas fa-angle-down"></i></div>
</a>
<a class="nav-link collapsed" href="setting.php" >
<div class="sb-nav-link-icon"><i class="fas fa-cog"></i></div>
Settings
<div class="sb-sidenav-collapse-arrow"><i class="fas fa-angle-down"></i></div>
</a>
<div class="sb-sidenav-menu-heading" style="background-color:#4CAF50; color:white; padding-top:10px; padding-bottom:10px;" >Views</div>
<a class="nav-link" href="order_history.php">
<div class="sb-nav-link-icon"><i class="fas fa-history"></i></div>
Orders History
</a>
<a class="nav-link" href="transaction_history.php">
<div class="sb-nav-link-icon"><i class="fas fa-receipt"></i></div>
Transaction History
</a>
</div>
</div>
<div class="sb-sidenav-footer" style="background-color:#4CAF50; color:white;">
<div class="small">Logged in as:</div>
Shopkeeper
</div>
</nav>
</div>
<div id="layoutSidenav_content" style="background-color:rgba(224, 235, 219, 0.83);">
<main>
<div class="container-fluid px-4">
<h1 class="mt-4">Dashboard</h1>

```

```

<ol class="breadcrumb mb-4">
    <li class="breadcrumb-item active">Welcome, <?php echo
    htmlspecialchars($username); ?> </li>
</ol>

<div class="stats-container">
    <div class="stat-box">
        <h3>Total Orders</h3>
        <p><?php echo $total_orders; ?></p>
    </div>
    <div class="stat-box">
        <h3>Today's Orders</h3>
        <p><?php echo $today_orders; ?></p>
    </div>
    <div class="stat-box">
        <h3>Total Earnings</h3>
        <p>₹<?php echo number_format($total_earnings, 2); ?></p>
    </div>
    <div class="stat-box">
        <h3>Today's Earnings</h3>
        <p>₹<?php echo number_format($today_earnings, 2); ?></p>
    </div>
</div>

<h2>  Sales Analytics</h2>
<div class="section charts-container">
    <div class="chart-box"><canvas id="monthlySalesChart"></canvas></div>
    <div class="chart-box"><canvas id="yearlySalesChart"></canvas></div>
    <div class="chart-box"><canvas id="shopSalesChart"></canvas></div>
    <div class="chart-box"><canvas id="dailySalesChart"></canvas></div>
</div>

<h2>  User Growth & Engagement</h2>
<div class="section charts-container">

```

```

<div class="chart-box"><canvas id="newReturningUsersChart"></canvas></div>
<div class="chart-box"><canvas id="totalUsersChart"></canvas></div>
<div class="chart-box"><canvas id="activeUsersChart"></canvas></div>
<div class="chart-box"><canvas id="shopRetentionChart"></canvas></div>
</div>

<h2>  Shop Performance</h2>
<div class="section charts-container">
    <div class="chart-box"><canvas id="totalOrdersChart"></canvas></div>
    <div class="chart-box"><canvas id="orderStatusChart"></canvas></div>
</div>

<h2>  Transaction Analytics</h2>
<div class="section charts-container">
    <div class="chart-box"><canvas id="totalRevenueChart"></canvas></div>
    <div class="chart-box"><canvas id="paymentMethodsChart"></canvas></div>
</div>

</main>
<footer class="py-4 bg-light mt-auto">
    <div class="container-fluid px-4">
        <div class="d-flex align-items-center justify-content-between small">
            <div class="text-muted">Copyright © Your Website 2023</div>
            <div>
                <a href="#">Privacy Policy</a>
                &middot;
                <a href="#">Terms & Conditions</a>
            </div>
        </div>
    </div>
</div>
</footer>
</div>  </body></html>

```

## **5.2 Testing Approach and Test Cases**

**Test Cases:** Test cases are detailed instructions and scenarios that specify how to test a particular aspect or functionality of a software application. They include information about the steps to be taken, inputs to be used, and expected outcomes.

**Test Data:** Test data consists of the specific inputs, parameters, or values that are used as input for a test case. It includes both valid and invalid data to assess how the software behaves under different conditions.

**Test Results:** Test results are the outcomes or observations obtained when executing a test case with specific test data. They indicate whether the software performed as expected, revealing any errors or issues encountered during testing. Test results help in identifying defects and verifying the correctness of the software.

**Testing Approaches:** Testing approaches are systematic methods used to verify and validate software applications to ensure they meet their intended requirements, perform correctly, and are free of defects. These approaches guide the planning and execution of testing activities throughout the software development lifecycle. There are several testing approaches, each with its specific objectives, techniques, and focuses. Here's an overview of some common testing approaches:

**1. Manual Testing:** Manual testing involves human testers executing test cases and interacting with the software as an end user would. Testers observe, evaluate, and report issues based on their expertise and experience.

**Types:** Manual testing includes functional testing, usability testing, exploratory testing, and ad-hoc testing.

**2. Black Box Testing:** Black box testing focuses on testing the functionality of the software without knowledge of its internal code structure. Testers examine inputs and outputs to validate if the software behaves correctly.

**Types:** Functional testing, usability testing, and acceptance testing are common black box testing methods.

**3. White Box Testing:** White box testing examines the internal code structure and logic of the software. Testers use knowledge of the code to design test cases that verify specific code paths.

**Types:** White box testing includes unit testing and code coverage analysis.

**4. Integrated Testing:** integrated testing is a software testing approach that checks how different components or modules of a software application work together when integrated. It ensures that these components interact correctly, data flows smoothly between them, and dependencies are managed effectively. Integrated testing helps identify and resolve integration-related issues to ensure the software functions as a cohesive unit.

## 1. Manual Testing

Index	Test Case	Test Data	State	Input Values	Results
1.	The values for email and Password should match	Entered wrong email and Password	Invalid	abc@gmail.com & 1234	Show Error Message
2.	Right email and password	Correct email and password	Valid	user@example.com & password123	Input is accepted and redirected to dashboard
3.	All fields must have values	Userame field empty	Invalid	None	Message "please Fill out this field".
4.	Both fields are given	Correct email and password	Valid	user@example.com & password123	Input is accepted and redirected to dashboard
5	Document preview functionality	Valid document uploaded	Valid	Uploaded PDF document	Document is previewed correctly
6	Print order details submission	All required fields filled	Valid	Copies, print type, shop ID	Order details submitted successfully
7	Missing order details	Print type not selected	Invalid	None	Error message "Please

## 2. Blackbox Testing

Index	Test case	Test Data	Input Values	Result
1.	User Registration	Valid user information	User provides valid registration details.	OTP is sent through email for verification
2.	Document Upload	Upload document	PDF file upload	Document is successfully uploaded and previewed
3.	Print order submission	Valid print order details	Copies, print type, shop ID	Print order is placed successfully
4.	Error Handling in Payment	Invalid payment information	Invalid card details	Error message shown, payment failed
5.	Unauthorized Access	Unauthorized access attempts	Attempt to access admin panel	Access is denied

### 3.Whitebox Testing

Index	Test Case	Test Data	Input Values	Result
1.	User Registration Validation	Valid and Invalid user inputs.	Registration data	User inputs are validated.
2.	Document Upload Logic	File upload	PDF file, Word document	Files are uploaded and previewed
3.	Print order validation	Valid and invalid inputs	Copies, print type	Correct inputs accepted, invalid ones trigger error messages
4.	Security Access Control Logic	Access control scenarios	Attempt unauthorized actions	Access control is enforced properly
5.	Error Handling Logic	Trigger error conditions	Payment error, file upload error	Errors are handled and logged correctly

### 4.Integrated Box Testing

Index	Test Cases	Test Data	Input Values	Result
1.	User Registration and Login	Valid user registration data	Email, password	User successfully registers and logs in
2.	Document upload and preview	Valid document upload	PDF or Word document	Document is uploaded and previewed correctly
3.	Print order submission and payment	Print order data	Copies, print type, shop ID, payment info.	Order is placed and payment is processed
4.	Access control logic	User and admin access control	Attempt to access restricted areas	Unauthorized access is denied
5.	Error Handling and Order Submission	Introduce errors	Invalid data inputs	Errors are handled and logged, system stability ensured

## 1.1 Image of Validations

1<sup>st</sup> Test case



### Shopkeeper

Email

Password

LOGIN

Forgot Username / Password?

Create your Account →

### Shopkeeper

Email

.....

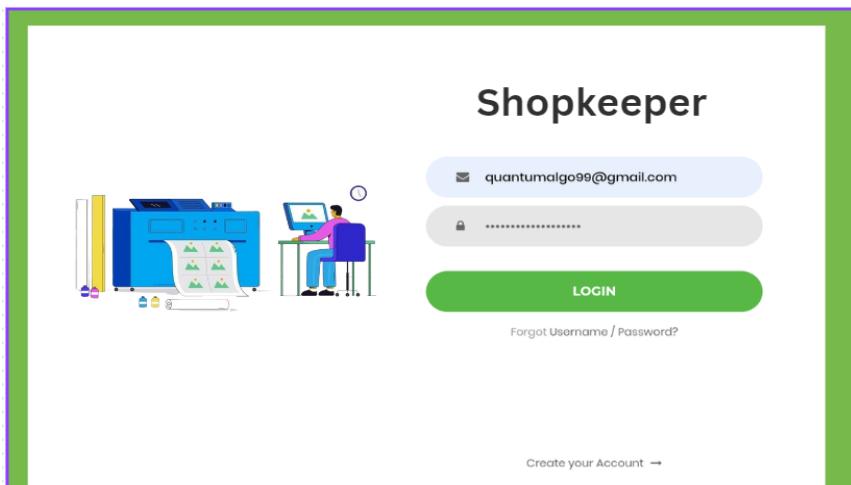
LOGIN

Forgot Username / Password?

Login page

Error Message

2<sup>nd</sup> Test case



### Shopkeeper

Email quantumalgo99@gmail.com

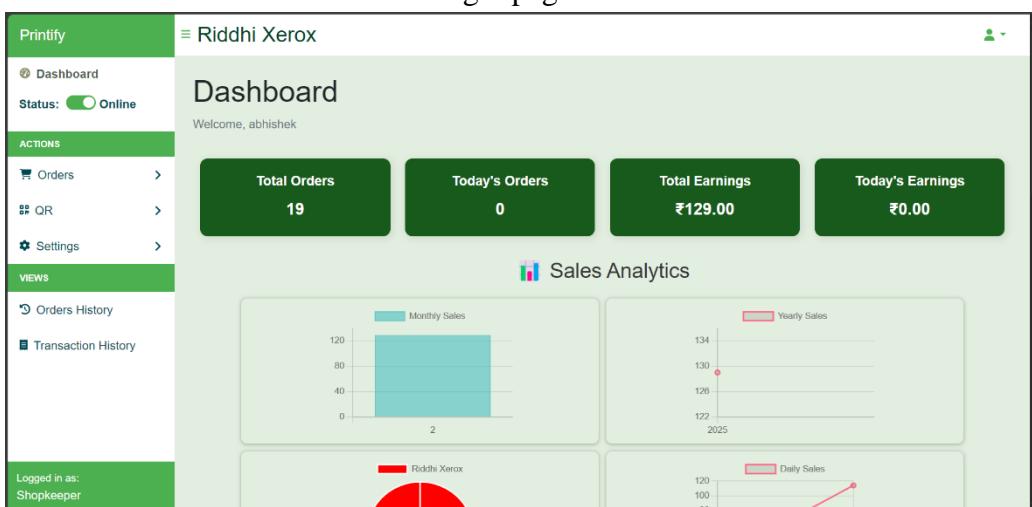
.....

LOGIN

Forgot Username / Password?

Create your Account →

Login page



Printify

Riddhi Xerox

Dashboard

Status:  Online

#### ACTIONS

Orders >

QR >

Settings >

#### VIEWS

Orders History

Transaction History

Logged in as:  
Shopkeeper

Dashboard

Welcome, abhishek

Total Orders

19

Today's Orders

0

Total Earnings

₹129.00

Today's Earnings

₹0.00

#### Sales Analytics



Monthly Sales

Category	Value
1	120
2	100
3	80
4	60



Yearly Sales

Year	Value
2023	130
2024	125
2025	122



Daily Sales

Date	Value
2023-01-01	120
2023-01-02	110
2023-01-03	100

Redirect to Dashboard.

51

## **6. DISCUSSION AND CONCLUSION**

### **6.1 Discussion**

#### **1. Overall Impact of the Project**

The online printing system is an innovative solution that allows users to upload, edit documents, and place orders for printing services digitally. It is a more convenient and time-saving option compared to traditional printing processes. Users can order printing as per their requirements without any hassle, which will reduce congestion at stores and make more efficient use of resources.

#### **2. User Experience and Interface**

The user interface of this system is designed to be user-friendly and intuitive. The design of the website is simple, responsive, and mobile friendly so that users can easily access it from any device. Features such as uploading, editing, and previewing documents for printing make it different from other traditional services.

#### **3. Backend and Data Management**

The backend of the system is developed using PHP and MySQL, which ensures its security and durability. Necessary encryption technologies have been adopted to safely store user data and protect payment transactions. Moreover, the order management system has been automated so that the printing shops do not face any delay in receiving and processing the orders.

#### **4. Security and Privacy**

The system has taken proper steps to protect the user data. Techniques like SSL encryption, two-factor authentication, and data backup systems have been used to keep the user's sensitive information safe. Additionally, strong password policies have been implemented to prevent any unauthorized access.

#### **5. Performance and Functionality**

The website performance has been optimized so that it can process more data in less time. The user experience has been further improved by the use of fast server response time and effective data caching techniques. Content Delivery Network (CDN) has been used to minimize the loading time and make the system scalable.

## **6.Challenges and their Solutions**

Some of the major challenges faced during the project development are secure integration of payment gateways, seamless experience of document preview and editing, and an efficient order tracking system for the user and the shopper. To solve these problems, Stripe API, PDF.js, and order status tracking system have been integrated, making all processes automated and efficient.

## **7.Limitations of the current system**

Although the system offers several important functionalities, it also has some limitations. For example, the document editing feature is currently limited and allows only basic editing. Also, the real-time order updates need to be made more interactive so that users can see the status of their orders instantly.

## **8.Future improvements and growth prospects**

In the future, there are plans to add AI-based document correction, support for multiple printing formats, and a dedicated mobile application for shoppers to the system. These improvements will make it more efficient and widely useful.

## **9.Potential impact in the industry**

This online printing system promotes digital transformation and helps make traditional printing services technologically advanced. It provides an ideal solution for businesses, students, and professionals, allowing them to fulfill their printing needs from anywhere.

## **10.Automation of Order Processing**

The order processing is completely automated in this online printing system. When the user uploads a document and places an order, it immediately appears on the printing shopkeeper's dashboard. This process reduces manual intervention and also reduces the chances of errors. Another advantage of this system is that the order status can be tracked in real-time, giving more transparency to the users.

## **11.Role of Document Editing and Preview**

To improve the user experience, document editing and preview facility is provided. When a user uploads a PDF, Word, or other types of document, he gets the option to see a preview of it

before printing. If any changes are required, the user can edit it online. This feature is extremely beneficial for the users, as it reduces mistakes and helps in sending the correct document.

## **12. Management Facility for Shopkeepers**

The system has a dedicated dashboard available not only for the users but also for the printing shopkeepers. Through this dashboard, shopkeepers can view their orders, update their status, and confirm payments. Each shopkeeper has a separate profile, allowing them to view only their orders. Apart from this, they are also allowed to set their printing charges, update available services, and view order history.

## **13. Payment Gateway and its Security**

For the convenience of users, the system uses Stripe payment gateway, which is a secure and reliable online payment solution. This payment gateway encrypts the user's credit/debit card information and ensures that no sensitive data is leaked. Additionally, users are sent a payment confirmation email, allowing them to keep a record of their transactions.

## **14. Order Tracking System**

Order tracking is an important feature for both users and shopkeepers. A real-time order tracking system has been implemented in this system, allowing users to view their order status (Processing, Printed, Delivered) live. Additionally, shoppers are given the option to mark the order as 'Done' after completing it, which will automatically update the order status.

## **15. Server Performance and Scalability**

The website's server is optimized to handle high traffic. Content Delivery Network (CDN) and server-side caching have been used to maintain the loading speed even when there are more users on the website. This ensures that the website remains fast and responsive, giving users a seamless experience.

## **16. Database Design and Data Security**

The system uses MySQL database to store users and shoppers' data securely. Passwords are hashed and salted to enhance the security of the data, preventing any kind of unauthorized login attempts. Also, users' files are stored in secure cloud storage, making the chances of data loss negligible.

## 6.2 Conclusion

This project gives a new direction to modern digital printing services, where users can upload their documents online, make necessary modifications, and choose the printing option as per their preference instead of visiting traditional printing shops. This online system has made the printing process faster, smoother, and more efficient. Users are given several options such as page count, color selection, and printing format, allowing them to get the service according to their needs. The biggest advantage of this system is that it saves time and resources, as customers can fulfill their requirements from the comfort of their homes and the shopkeeper only has to focus on printing and delivery.

Additionally, this system has also proved to be highly beneficial for the shopkeepers. They can organize their orders digitally, update the order status, and accept payments directly online. This increases the productivity of the shopkeepers and they can process more orders. The system includes features such as automatic cost calculation, customer profile management, and payment integration, making the entire process fast and efficient.

However, this system needs to be made more sophisticated. In the future, features such as AI-based file optimization, cloud storage, and automatic printing scheduling can be added to it. This will not only provide more convenience to users, but will also give shopkeepers a chance to make their operations more automated and efficient. In addition, encryption techniques and multi-factor authentication can also be included to strengthen cybersecurity, ensuring that both customer and shopkeeper data is completely safe.

This project has proven that traditional services can be made more modern, efficient, and user-centric by using digital technology properly. The online printing system is part of a digital revolution, which takes printing services to a new level and provides users with more convenience and flexibility than ever before. In the future, there are plans to expand this platform internationally and integrate it with other digital services, allowing users to get all the necessary printing and document management services on a single platform.

This online printing system is an innovative technological solution that transforms traditional printing services into a digital form. The project aims to provide fast, convenient and efficient printing services to users where they can upload their documents, make necessary corrections, select printing options and make payments without visiting any physical location. Features like real-time preview, cost estimation, various payment gateway support and secure data management have been added through this system to provide a better user experience.

Moreover, this system is also beneficial for shopkeepers as they get complete information about their orders on a single platform. They can update the status of any order, estimate the order completion time and communicate with customers easily. This automated system helps shopkeepers save time and resources, thereby increasing their efficiency. A key feature of this project is automated billing and page counting, so that the customer immediately knows how much he has to pay.

However, this system needs further improvement. In the future, more advanced AI-based text recognition, document optimization, and better cloud storage features can be added to it. This will help users handle their documents in a more efficient way. Also, the security of transactions can be further enhanced with the use of blockchain technology, providing a more secure experience for both customers and shopkeepers.

In the digital age, these types of services not only meet the needs of users but also help businesses to bring efficiency to their operations. This system not only makes printing services easier and faster, but also presents it as a comprehensive digital solution, where both customers and shopkeepers get a seamless experience. Moreover, in the future, this platform can be integrated so that it can work with other digital services, such as document digitization and online design tools.

Overall, this project is a significant effort to transform the printing industry into a modern digital form. It aims to automate traditional processes, improve customer experience, and make business operations easier and more profitable for shopkeepers. In the future, this system can evolve into a complete digital printing solution by adopting more innovative technologies, making it a revolutionary change in the industry.

Through this project, a fast, secure, and efficient online printing system has been developed that allows users to easily access printing services as per their requirements. Compared to traditional printing services, this system offers features such as faster order processing, easy payments, and convenient order tracking. Customers can upload their documents, edit them, choose the required printing options, and complete the order without any hassle.

The major benefits of this system include time savings, improved efficiency, and ease of order management. Traditional printing involved visiting the shop, calculating the price manually, and often waiting for a long time. But through this online system, the entire process has been digitally automated, providing instant service to the customer. Moreover, this system is extremely beneficial for shopkeepers as well. Through an organized dashboard, they can easily

manage all the orders, print as per the requirements of each customer, and update the order status. It provides a more efficient and transparent system than traditional stores.

Another important feature of this project is automatic cost calculation. When a customer uploads a document, the system automatically counts the pages and provides an estimate of the printing cost. This lets the customer immediately know the amount he will have to pay, eliminating the possibility of uncertainty and misunderstanding.

However, this project can still be developed with many more improvements. In the future, advanced artificial intelligence algorithms can be added to it, which can identify documents better and format them automatically. Additionally, the server capacity can be increased for large-scale use so that more customers can avail this service simultaneously.

### Future Prospects

Blockchain-based security – Blockchain technology can be added to this system to make transactions more secure, providing a more secure experience to both the customer and the shopkeeper.

Cloud integration – Customers can be allowed to upload their documents directly from cloud services like Google Drive, OneDrive, or Dropbox.

AI-powered text optimization – An auto-formatting system for documents can be developed that can automatically optimize user-uploaded files for printing.

Real-time order tracking – Customers receive real-time notifications and order status updates to let them know the status of their order processing immediately.

Mobile application development – An Android and iOS app can be developed to allow customers to place orders via mobile and fulfill their printing requirements.

## **7 .LIMITATIONS**

Although this online printing system provides fast, efficient and convenient services, it still has some limitations that can affect its performance and user experience. By understanding these limitations, this system can be made more effective in the future.

### **1. Dependence on Internet connectivity**

This system is completely dependent on the Internet. If the customer or shopkeeper has an unstable or slow Internet connection, they may feel difficulty in uploading documents, placing orders and tracking them. Due to low network speed, uploading large file sizes may take more time, which may affect the customer experience.

### **2. Delay in processing large documents**

This system can process small and medium-sized documents quickly, but documents with very large file sizes (more than 50MB) may take longer to upload and process. If users upload high-resolution PDF files or images, the server load may increase and the system may slow down.

### **3. Limited file format support**

The system mainly supports popular file formats like PDF, DOCX, and JPG, but less popular file formats like ODT, TIFF, and EPUB are not fully supported. Due to this, some users may have to convert the file to another format first, which requires additional time and effort.

### **4. Printing quality not guaranteed**

Although customers can preview their documents and adjust the settings, the final printing quality depends entirely on the shopkeeper's printer settings and paper quality. If the shopkeeper has an old printer or low-quality paper, the printing output may not be as per the customer's expectations.

### **5. Possible delay in order delivery**

The online printing system only makes the digital process easier, but the final delivery depends on the shopkeeper's efficiency. In some cases, if the shopkeeper is busy or does not have enough resources, the order delivery may be delayed.

### **6. Payment Issues**

Although the system uses secure online payment gateways like Stripe, some users may still experience failed payments, server errors, or refund-related issues. Also, not all users prefer online payments, which may cause inconvenience for some customers as the cash-on-delivery (COD) option is not available.

## **7. Data Security and Privacy Concerns**

Although the system stores users' files on secure servers, the risk of data leaks or cyber attacks cannot be completely eliminated. If there is a security breach for some reason, users' sensitive documents may be misused.

## **8. Friendly only for tech-savvy users**

The system is convenient for technically capable users, but users with less technical knowledge (such as older people or people less familiar with computers) may have trouble understanding and using it. They may need extra time to learn the process of uploading documents, choosing formats, and making payments.

## **9. High initial investment for shopkeepers**

Shopkeepers need to buy an internet connection, a computer or tablet, and a good printer to be a part of this system. This can be a challenge for small shopkeepers who do not already have digital resources.

## **10. Competition and market acceptance**

Online printing services are still developing as a new trend, and many customers still prefer traditional printing shops. Some users do not fully trust online services, which may take time for this system to reach more customers.

## **Possible improvements and solutions**

Despite all these limitations, this system can be made more efficient in the future:

1. Better cloud-based systems can be developed that allow faster file uploading and processing.
2. Support for more file formats can be added, so that users do not need to convert files.
3. Security from data leaks and cyber attacks can be further strengthened by adopting better cybersecurity protocols.
4. The requirements of more customers can be met by adding both online and offline payment options.
5. A user support system can be developed so that even customers with less technical knowledge can easily avail this service.

## **8. Future Work**

### **1. System expansion and cloud integration**

In the future, this online printing system can be connected to a cloud-based server, making the file storage and accessing process faster and safer for users. Through cloud integration, users can upload their documents from anywhere, and shopkeepers will also be able to access their orders from any device. Apart from this, the automatic backup feature will also reduce the chances of data loss.

### **2. Automated printing and use of machine learning**

Machine learning algorithms can be integrated in this system, so that it can automatically suggest printing settings by understanding the customer's printing preferences. For example, if a user repeatedly selects a particular paper size and printing style, the system can set the same as default the next time. Apart from this, the printing process can be completely automated for shopkeepers by adopting automated printing technology.

### **3. Mobile Application Development**

In the future, a dedicated mobile application can be developed for this online printing system, giving users a more convenient experience. Features like QR code scanning, order tracking, and live chat support can be added to the mobile app. Apart from this, a separate application can also be developed for shopkeepers, so that they can manage their orders faster.

### **4. More Payment Gateways and Cryptocurrency Support**

At present, only Stripe payment gateway is supported in this system, but in the future, payment facility through Google Pay, PayPal, PhonePe, and cryptocurrencies (Bitcoin, Ethereum) can also be added. This will allow customers to pay using any payment mode as per their convenience, which will make more users a part of this platform.

### **5. Multi-Language Support and Localization**

Currently this system is available only in English and Hindi, but in the future it can be expanded to more languages. By adding support for regional languages, it can be made useful for more and more people. Using automatic language translation technology, customers can see instructions and printing settings in their own language, improving their experience.

## **6. Artificial Intelligence-based Customer Support**

In the future, chatbots and AI-enabled customer support systems can be added, allowing users to receive faster answers and assistance. The system will be able to answer common questions, update order statuses, and provide suggestions to resolve any technical issues. This will reduce the pressure on the customer support team and provide 24/7 service to users.

## **7. Advanced Security and Blockchain Integration**

Blockchain technology can be added to further strengthen data security. This will keep all transactions and order details secure, and prevent any unauthorized access. Digital certificates and encrypted transaction history can be stored through blockchain, creating a secure environment for both customers and shopkeepers.

## **8. Automated Pricing and Discount System**

In the future, a dynamic pricing algorithm can be developed to automatically calculate the printing cost based on various factors such as paper type, color printing, and order volume. Additionally, customers can be offered discount coupons and loyalty programs to encourage them to use the platform regularly.

## **9. Online Design and Template Editing Tool**

At present, the system is only for document upload and printing, but in the future, an online editor can be added to it, allowing customers to design and customize their documents before uploading them. Users will be able to design resumes, business cards, posters, and flyers online, making this platform a complete printing solution.

## **10. Order Tracking and Real-Time Status Updates**

Real-time order tracking and status update feature can be added to this system, allowing customers to track the status of their orders live (processing, printed, ready for pickup). Additionally, the shopkeeper can also be provided with a dashboard where they can manage all the pending and completed orders.

## **11. Automation in order management**

Currently, shopkeepers have to process orders manually, but in the future, it can be fully automated. A smart order management system can be added that can automatically route the

orders placed by customers to the nearest available print shop. This will speed up the delivery of orders and manage the workload better.

## **12. Digital wallet and cashback system**

In the future, an in-built digital wallet system can be developed for users to make payments easily by adding money to their account. Apart from this, a cashback and reward point system can be implemented to motivate customers to order regularly. Shopkeepers can also retain their regular customers by offering special discounts.

## **13. Expansion of 3D printing and other printing services**

In the future, this online printing platform can be developed for services like 3D printing, sticker printing, T-shirt printing, and custom gift printing, not just document printing. This will give users more variety, and they will be able to use this platform for their personal and business needs.

## **14. Machine learning based document enhancement**

Many users upload low quality scanned documents, which affects the quality of printing. In the future, machine learning based image enhancement and OCR (Optical Character Recognition) technology can be added, which can automatically improve the quality of documents and make the text more clear.

## **15. Customer review and rating system**

A feedback and rating system can be added, allowing customers to rate and review the services of shopkeepers. This will help other customers to choose better printing services, and shopkeepers will also get a feedback system to improve their services.

## **16. Email and SMS Notification System**

In the future, an automated email and SMS notification system can be developed for both customers and shopkeepers. This will allow customers to receive order confirmations, printing status updates, and delivery notifications. Shopkeepers will also be able to receive information about new orders immediately.

## **17. Advanced Order Filtering and Search Option**

Better order filtering and search feature can be added for shopkeepers and customers. Customers can search their previous orders based on date, printing type, payment status, and

delivery status. Shopkeepers can also use features like live order tracking and auto-priority assignment.

## **18. International Printing and Delivery Service**

If this platform is expanded, it can be implemented internationally as well. Customers can also get documents printed abroad and receive them through courier service. This will increase the reach and user base of the platform.

## **19. Advanced Data Analytics and Business Intelligence**

Data analytics and business intelligence features can be added to this platform, which will help shopkeepers analyze their sales data, popular printing options, and customer behavior. This will enable them to make better business decisions and earn more profits.

## **20. AR (Augmented Reality) based printing preview**

In the future, an AR-enabled preview system can be added, which will enable customers to view their printing designs virtually in the real world. For example, customers can view their T-shirt printing designs first in AR to decide how the printing will look. This can make the customer experience better and more interactive.

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