



SOFTWARE REQUIREMENT SPECIFICATION

PrintFlyers – A printout delivery application



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1 INTRODUCTION:

1.1 Purpose:

The purpose of this project is to develop a printout delivery service aimed at students, professionals, and the general public. This service aims to save time for users, particularly in metropolitan cities, by eliminating the need to wait in queues at local printout centre. For instance, within a college setting, where students often face delays due to temporary closures or long waiting times at printout centres, this app will provide an efficient alternative for students to complete their printing tasks while focusing on other activities. While primarily designed for college students, the service will also be available to the general public.

1.2 Document conventions:

- User – One who uses the application for printout (students, public).
- Shopkeeper- One who process the printing job and keep it out for delivery.
- Admin – One who take care of the app performance, safety ,revenue .
- Delivery personnel – One who delivers the printout from the shop to customers

1.3 Intended Audience and Reading Suggestions:

- **Users:** Students (for assignments, projects, and reports), Professionals (for meetings, presentations, and official work), and the General Public (for bulk printouts with home delivery convenience).
- **Shopkeepers** – Print shop businesses that want to expand their services through online orders and delivery.
- **Delivery personnel** - Individuals responsible for picking up print orders from shops and delivering them to users. They will use the app to track assigned deliveries, update order statuses, and navigate routes efficiently.
- **Administrators** – The team managing the app, handling user queries, and ensuring smooth operations.
- **Developers & Designers** – Refer to system requirements, UI/UX design, and security features for better implementation.

1.4 Project scope:

The goal of this project is to develop a mobile application that addresses the challenges faced by users in accessing printouts. The app aims to eliminate the need for users to travel to printout centres and wait in long queues, saving valuable time.

The app will provide the following key features:

- **Printout Customization:** Users will be able to choose their printout preferences, including options such as **black and white or colour** and **single or double-sided** printing.
- **Address Selection:** Users can specify a delivery address for the printouts to be sent to, whether on campus or at a different location.

- **Free Delivery:** The app will provide free delivery for printout orders, ensuring a cost-effective solution for users.

LIMITATIONS:

- Orders will only be accepted for a minimum of 50 pages or more.
- Delivery may experience delays due to traffic or other logistical factors, particularly in metropolitan cities

BENEFITS:

- **Time-saving:** The app reduces the need to travel to printout centres, allowing users to engage in other tasks.
- **Convenience:** Students and professionals can place orders directly from the college or workplace, ensuring timely delivery even when they forget to print documents in advance.

1.5 References:

1. Pressman, R.S. "Software Engineering: A Practitioner Approach", 8th Edition Revised, McGraw Hill, Chennai, 2019.
2. Sommerville, I. "Engineering Software Products", Global Edition, Pearson Education, 2021.
3. Abraham Silberschatz, Henry. F. Korth, S. Sudarsan "Database System Concepts", McGraw Hill, Seventh Edition, Indian Edition, 2021.
4. Balagurusamy, "Object-Oriented Programming with C++", Eighth Edition, McGraw Hill, 2020.

2 OVERALL DESCRIPTION:

2.1 Product perspective:

A database system stores the following information:

Printout shop details:

It includes the shop location, shop operating hours, services offered by the shop (like binding , black and white or colour), contact information of the shop etc.,

User (or customer) description:

It includes user name, user contact number, user address (to deliver the printout), user time slot(to deliver the product), log out their account, delete their account.

Shopkeeper description:

Shopkeepers can view and manage incoming orders, track deliveries and set availability etc., mark the delivered products, logout their account, delete their account.

Delivery personnel description:

Assigns delivery personnel to orders, tracks deliveries, and updates status.

Admin description:

Admins can monitor app performance, manage user accounts and view analytics on order and revenue, delete shopkeeper or user account.

2.2 Product features:

1. Customer Features:

- User Registration & Authentication – Sign up/login using OTP, email, or phone number.
- File Upload & Format Support – Upload PDFs, Word documents, and images.
- Customization Print – Choose B/W or colour, single/double-sided, paper type, and size.
- Minimum Order Requirement – Orders accepted only for 50+ pages.
- Order Tracking & Status Updates – Real-time tracking of order progress.
- Delivery Address Selection – Add and save multiple delivery addresses.
- Free Delivery – No extra charge for eligible orders.
- Secure Payment Options – Pay via UPI, credit/debit cards, wallets, or COD.
- Notifications & Alerts – Get updates on order confirmation, delivery, and promotions.
- Order History & Reordering – View past orders and reorder with one click.
- Customer Support – Live chat and email support for queries.
- Order Cancellation & Modification – Modify or cancel orders within a specific time.
- Order Tracking & Status Updates – Real-time tracking of order progress, including delivery status updates from the assigned delivery person.

2. Order Management Features

- Order Confirmation & Invoice Generation – Auto-generated order summary and invoice.
- Order Queue System – Prioritizes orders based on time and shop availability.
- Estimated Delivery Time Calculation – Based on distance, traffic, and shop processing speed.
- Delivery Slot Selection – Customers can choose delivery time slots.
- Live Delivery Tracking – Real-time updates on package location.
- Order Packaging Options – Users can select packaging (flat, binding).
- Feedback & Ratings – Customers can rate shops and delivery experience.
- Delivery Personnel Assignment – Orders will be assigned to available delivery personnel based on proximity and availability.

- Delivery Confirmation – Delivery personnel will update the app upon successful delivery.
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3. Shopkeeper Features

- Shop Registration & Profile Management – Register shops and update location, services, and timing.
 - Order Management Dashboard – View, process, and complete incoming orders.
 - Print Job Queue – Auto-assigns print jobs based on priority and order time.
 - Pricing Customization – Set prices for different print services.
 - Shop Availability Status – Toggle between open/closed to manage workload.
 - Earnings & Transaction History – Track revenue and payments.
 - Promotions & Discounts – Offer discounts to attract customers.
 - Customer Reviews & Feedback Management – View and respond to user ratings.
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4. Admin Features

- User & Shop Management – Add, remove, or verify users and shops.
- Order Monitoring & Analytics – View order trends, peak times, and revenue reports.
- Dispute Resolution System – Handle customer/shopkeeper complaints.
- Performance Metrics & Feedback Analysis – Track service quality.
- Fraud Detection & Security – Monitor unusual transactions and enforce policies.
- App Content & Promotions Management – Control banners, offers, and user notifications.
- Monitor delivery efficiency, performance, and customer feedback.
- Resolve disputes related to late deliveries or misplaced orders.

2.3 User classes and characteristics:

1. USERS:

One who uses this app to get printout delivery.

Characteristics:

- Includes college students, office workers, and the general public.
- May need urgent printouts but lack access to a nearby print shop.
- Prefer a convenient and time-saving service instead of waiting in long queues.

2. Shopkeepers:

Users who process and fulfil print orders

Characteristics:

- Print shop owners or managers looking to expand their customer base.
- Need a system to manage incoming orders efficiently.
- Require a way to track earnings and business performance.

3. Delivery Personnel:

Users responsible for delivering the printouts to customers.

Characteristics:

- Receive delivery assignments from shopkeepers.
- Update real-time status of the delivery (e.g., "Out for Delivery," "Delivered").
- Use GPS navigation to locate delivery addresses.
- Communicate with shopkeepers or customers in case of delivery issues

4. Admins:

User who oversee and manages the platform

Characteristics:

- Responsible for maintaining the app, monitoring transactions, and handling disputes.
- Need real-time insights into orders, revenue, and customer activity.

2.4 Operating environment:

- Smartphones (Android/iOS) or computers with an internet connection.
- Minimum 2GB RAM and 16GB storage for smooth app performance.
- Smartphones that support GPS functionality and are compatible with 4G and 5G networks.
- Stable internet connection for app usage and real-time order updates.

3 SYSTEM FEATURES:**3.1 User / shopkeeper registration and authentication:**

- User / shopkeeper can register the account through their mail id or mobile numbers.
- User / shopkeeper can login into the account using the password they set during registration.
- User / shopkeeper can reset their password if they forgot the old password .

3.2 Shop searching:

- User can search or filter the shops by the distance.

3.3 Order placement:

- User can upload files (any format)
- Users have print customization offers.
- Users can select delivery or pickup options.
- Users can choose or enter a delivery address manually or via GPS.
- The system provides an estimated delivery time before order confirmation.
- Users receive order confirmation and status updates via notifications, SMS, or email.

3.4 Shopkeeper features:

- Can update order status (e.g., "Printing," "Ready for Pickup," "Out for Delivery,")
- They can view order history and earnings reports.
- Can communicate with admin via in-app messaging or support chat.
- Access to customer reviews and ratings for service improvement

3.5 Payment integration:

- UPI (Google Pay, PhonePe, Paytm, etc.)
- Credit/Debit Cards
- Mobile Wallets (Paytm Wallet, Amazon Pay, etc.)
- Net Banking

3.6 Delivery personnel:

- Can view assigned deliveries, update status (e.g., "Picked Up," "Delivered").
- Access navigation tools for optimized routes and estimated delivery times.
- Can communicate with customers/admin via in-app chat or call support.
- Track earnings, delivery history, and receive customer feedback for improvement.

3.6 Admin dashboard:

- View, edit, and remove customers, shopkeepers, and delivery personnel.
- Manage user authentication and account verification.
- Approve or reject shop registrations.
- Monitor shop activity, including order completion rates and ratings.
- Handle disputes related to pricing, service quality, and customer complaints.
- Track delivery personnel activity, including order completion time, delivery performance, and user ratings.
- Resolve delivery-related complaints.

4 EXTERNAL INTERFACES:

4.1 User interfaces:

- Login & Registration Screen
- Home Screen
- File Upload Screen
- Print Customization Screen
- Shop Selection Screen
- Order Confirmation & Payment Screen
- Order Tracking Screen
- Order History Screen
- Profile & Settings Screen

4.2. Shopkeeper Interface

- Login & Dashboard
- Order Management Screen
- Pricing & Service Settings
- Earnings & Payment Dashboard
- Customer Communication Screen

4.4 Delivery personnel interface:

- Login & Dashboard
- Order Pickup List
- Real-Time Route Navigation
- Order Delivery Confirmation Screen
- Earnings & Payment Dashboard

4.5 Hardware Interfaces

- The app will function on smartphones and tablets with iOS and Android.
- The app will need GPS functionality for location-based searches and item availability.

4.6 Software Interfaces

- Payment Gateway API: Integration with Stripe or PayPal for handling transactions securely.
- Location API: Google Maps or similar API for mapping locations and item availability.
- Push Notifications: Firebase Cloud Messaging or similar services for real-time updates.

5 OTHER NON-FUNCTIONAL REQUIREMENTS

5.1 Performance Requirements

- The system should handle at least 1000 concurrent users without performance degradation.
- File uploads should be processed within 5 seconds for files up to 50MB.
- Order placement should not take more than 3 seconds after confirmation.
- The app should work efficiently even on a 4G network with limited bandwidth.
- Delivery tracking updates should be reflected in real-time within 2 seconds of status change.

5.2 Safety requirements:

- The app should prevent file corruption or loss during upload and processing.
- In case of system failure, order data should be recoverable without user intervention.
- The system should log all critical transactions for auditing purposes.

5.3 Security requirements:

- All personal data, files, and transactions must be encrypted using AES-256 encryption.
- Payment transactions should comply with PCI-DSS security standards.
- Shopkeepers should only access their own order data and not see other shops' orders.
- User authentication should be secured with OTP-based login.
- Delivery personnel should only access delivery-related information (order ID, customer address, and contact details) while assigned to an active order.

5.4 Usability Requirements

- The app should be easy to navigate for students, with minimal on boarding required.
- Accessibility features, such as screen reader support and high-contrast modes, should be implemented.

6 OTHER REQUIREMENTS:

6.1 Legal Requirements

- Users must agree to the Terms and Conditions and Privacy Policy before using the app.

6.2 Operational Requirements

- The system should be available 99.9% of the time, excluding scheduled maintenance periods.
- Regular backups should be conducted to ensure data safety and disaster recovery.
- The customer support team should respond to user inquiries within 24 hours.