- 1. **E-Commerce System**: An object-oriented online retail platform with classes for products, users, and transactions, supporting features like shopping carts and order tracking.
- 2. **Banking Application**: A banking system with classes representing accounts, customers, and financial transactions, including features like fund transfers and account management.
- 3. **Hospital Management Software**: An application with classes for patients, doctors, and medical records, facilitating appointment scheduling and patient record management.
- 4. **Airline Reservation System**: A system with classes for flights, passengers, and bookings, allowing users to search, book, and manage flight reservations.
- 5. **Library Management System**: A software with classes for books, members, and loans, handling book checkouts, returns, and inventory management.
- 6. **School Administration System**: An application with classes for students, teachers, and courses, managing enrollments, grades, and timetables.
- 7. **Inventory Management Software**: A system with classes for products, orders, and suppliers, tracking stock levels, orders, and supply chain logistics.
- 8. **Real Estate Portal**: An online platform with classes for properties, agents, and listings, enabling property searches, listings, and agent-client interactions.
- Human Resources Management System: A software with classes for employees, departments, and payrolls, managing employee records, recruitment, and payroll processing.
- 10. **Content Management System**: An application with classes for articles, authors, and categories, enabling the creation, editing, and management of digital content.
- 11. **Insurance Policy Management System**: A system with classes for policies, customers, and claims, handling policy issuance, customer management, and claims processing.
- 12. **E-Learning Platform**: An online education system with classes for courses, students, and assessments, supporting course delivery, student enrollment, and testing.
- 13. **Sports Team Management App**: A software with classes for players, teams, and matches, managing team rosters, schedules, and game statistics.
- 14. **Video Streaming Service**: An application with classes for videos, users, and subscriptions, offering video streaming, user profiles, and subscription management.
- 15. **Online Booking System for Hotels**: A system with classes for hotels, rooms, and reservations, facilitating room booking, customer management, and payment processing.
- 16. **Social Networking Site**: An application with classes for users, posts, and connections, supporting social interactions, content sharing, and network building.
- 17. **Weather Forecasting System**: A software with classes for locations, forecasts, and weather data, providing weather predictions and data analysis.
- 18. **Customer Relationship Management (CRM) Tool**: A CRM system with classes for customers, interactions, and sales, managing customer data, sales tracking, and communication history.
- 19. **Online Food Delivery Service**: An application with classes for restaurants, menus, and orders, enabling users to order food, track deliveries, and rate services.
- 20. **Car Rental System**: A system with classes for vehicles, bookings, and customers, handling car reservations, customer profiles, and rental agreements.

- 21. **Event Planning Software**: An application with classes for events, attendees, and vendors, managing event scheduling, ticketing, and vendor coordination.
- 22. **Gaming Platform**: A gaming system with classes for games, players, and scores, offering game downloads, online play, and leaderboards.
- 23. **Automated Trading System**: A software with classes for stocks, traders, and transactions, enabling automated trading, portfolio management, and market analysis.
- 24. **Fitness App**: An app with classes for workouts, users, and progress tracking, offering exercise routines, fitness tracking, and goal setting.
- 25. **Movie Ticket Booking System**: A system with classes for cinemas, movies, and tickets, facilitating movie searches, seat selection, and ticket purchasing.
- 26. **Task Management Tool**: An application with classes for tasks, projects, and users, supporting task assignment, progress tracking, and collaboration.
- 27. **Insurance Risk Assessment Tool**: A software with classes for policies, risks, and clients, assessing risk profiles and calculating insurance premiums.
- 28. **Digital Wallet Application**: An app with classes for users, transactions, and accounts, enabling mobile payments, fund transfers, and financial tracking.
- 29. **Pet Adoption Platform**: A system with classes for pets, shelters, and adopters, facilitating pet searches, adoption processes, and shelter management.
- 30. **Travel Itinerary Planner**: An application with classes for destinations, itineraries, and travelers, assisting in trip planning, itinerary creation, and travel recommendations.

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Projects Functional Requirements.

1. E-Commerce System

- User Registration and Authentication: Users can create accounts, log in, and manage their profiles;
- Product Browsing: Users can browse through product listings with sorting and filtering options;
- Shopping Cart Management: Users can add, modify, and remove products in their shopping cart;
- Order Placement: Users can place orders, including address and payment information entry;
- Payment Processing: Integration with payment gateways for processing transactions;
- Order Tracking: Users can track the status of their orders post-purchase;
- Product Management: Admins can add, edit, and remove products from the inventory;
- User Review and Rating System: Users can rate products and write reviews;
- Discount and Promotion Management: Admins can create and manage discounts and promotions;
- Customer Service Interface: A system for handling customer queries and complaints.

2. Banking Application

- Account Creation and Management: Users can open and manage different types of bank accounts;
- Fund Transfer: Users can transfer funds between accounts within and outside the bank;
- Transaction History: Users can view a detailed history of their transactions;
- Loan Management: Users can apply for and manage loans;
- Bill Payments: Users can pay bills directly through the application;
- Account Alerts: Customizable notifications for account activities;
- Cheque Book Request: Users can request cheque books;
- Foreign Currency Exchange: Currency exchange services with real-time rates;
- Savings and Investment Options: Information and management of various savings and investment schemes:
- Customer Support: A system for handling customer inquiries and issues.

3. Hospital Management Software

- Patient Registration: Patients can register and maintain their profiles;
- Appointment Scheduling: Patients can book, cancel, and reschedule appointments with doctors;
- Medical Record Management: Secure storage and access to patient medical records;
- Billing and Invoicing: Automated billing for medical services rendered;
- Prescription Management: Doctors can create and manage prescriptions;
- Lab Test Ordering and Reporting: Ordering lab tests and accessing results;
- Ward and Bed Management: Management of hospital wards and bed allocations;
- Inventory Management: Management of medical supplies and inventory;
- Staff Scheduling: Scheduling shifts and duties for hospital staff;
- Emergency Services Management: Handling and prioritizing emergency cases.

4. Airline Reservation System

- Flight Search: Users can search for flights based on various criteria;
- Booking Management: Users can book, cancel, and modify flight bookings;
- Online Check-in: Users can check in online for their flights;
- Seat Selection: Users can select and change their seats;
- Baggage Information: Information about baggage allowances and fees;
- Loyalty Program Management: Management and redemption of frequent flyer points;
- Flight Status Updates: Real-time updates on flight status;
- Special Requests: Handling of special requests like meals and accessibility needs;
- Multi-City Booking: Booking flights with multiple stopovers;
- Customer Support Interface: Assisting customers with their queries and issues.

5. Library Management System

- Catalog Search: Users can search the library catalog by title, author, genre, etc;
- Borrow and Return: Users can check out and return books;
- Reservation System: Users can reserve books that are currently on loan;
- Overdue Notifications: Automated notifications for overdue items;
- Member Management: Registration and management of library members;
- Fine Calculation and Payment: Calculation and payment of overdue fines;
- **Inventory Management**: Tracking and management of library inventory:
- Event Management: Scheduling and promoting library events;
- E-books and Online Resources: Access to digital resources and e-books;
- Reporting and Analytics: Generating reports on library usage and trends.

6. School Administration System

- Student Enrollment: Management of student enrollment and personal details;
- Class and Timetable Management: Creation and management of class schedules;
- Attendance Tracking: Recording and monitoring student attendance:
- Gradebook Management: Recording and calculating student grades;
- Course Material Distribution: Distribution of course materials to students;
- Parent Portal: A portal for parents to monitor student progress and communicate with teachers;
- Fee and Payment Processing: Handling of tuition and other fee payments;
- Examination Management: Scheduling and managing examinations;
- School Bus Tracking: Real-time tracking of school bus locations;
- Extra-Curricular Activities Management: Managing student participation in extra-curricular activities.

7. Inventory Management Software

- Product Catalog Management: Adding, updating, and categorizing inventory items;
- Stock Level Tracking: Real-time tracking of inventory levels;
- Reorder Alerts: Automated alerts for low stock and reorder points;
- Supplier Management: Managing information about suppliers;
- Purchase Order Creation: Generating and managing purchase orders;
- Barcode Scanning: Integration of barcode scanning for inventory management;
- Inventory Valuation: Calculating the total value of the inventory on hand;
- Sales and Purchase History: Tracking and analyzing sales and purchase data;
- Multi-Location Management: Managing inventory across multiple locations;
- **Inventory Reports**: Generating detailed reports on inventory status and movements.

8. Real Estate Portal

- Property Listing and Management: Users can list, edit, and manage property postings;
- Search and Filter Functionality: Advanced search options for finding properties;
- Agent Profiles: Creation and management of real estate agent profiles;
- Appointment Scheduling: Scheduling viewings and appointments between agents and clients;
- Virtual Tours: Integration of virtual property tours;
- Customer Inquiry Management: Managing inquiries from potential buyers or renters;
- Market Trends and Analysis: Providing insights on real estate market trends;
- Map Integration: Displaying properties on an interactive map;
- Mortgage Calculator: A tool for calculating mortgage payments;
- User Reviews and Ratings: Users can rate and review properties and agents.

9. Human Resources Management System

- Employee Profile Management: Managing detailed profiles of employees;
- Attendance and Time Tracking: Recording and analyzing employee attendance and working hours:
- Payroll Processing: Automated calculation and processing of employee salaries;
- Recruitment and Onboarding: Managing job postings, applications, and employee onboarding;
- Performance Evaluation: Tracking and evaluating employee performance;
- Leave Management: Handling employee leave requests and balances;
- Benefits Administration: Managing employee benefits like insurance and pensions;
- Training and Development: Organizing and tracking employee training sessions;
- **Employee Self-Service Portal**: Allowing employees to manage their personal information and requests;
- Compliance Reporting: Ensuring compliance with labor laws and regulations.

10. Content Management System

- Content Creation and Editing: Users can create, edit, and publish content;
- Media Library Management: Managing images, videos, and other media files;
- User Roles and Permissions: Assigning roles and permissions for different users;
- Template and Design Customization: Customizing the layout and design of web pages;
- SEO Optimization Tools: Tools for optimizing content for search engines;
- Content Scheduling: Scheduling content to be published at specific times;
- Multi-Language Support: Supporting content in multiple languages;
- Social Media Integration: Integrating with social media platforms for content sharing;
- Analytics and Reporting: Tracking website traffic and user engagement;
- Comment and Review System: Managing user comments and feedback on content.

11. Insurance Policy Management System

- Policy Creation and Management: Users can create, view, and manage various types of insurance policies;
- Claim Processing: Automated processing of insurance claims with validation checks;
- Customer Profile Management: Management of customer profiles, including personal and policy information;
- Payment Processing: Handling premium payments and sending reminders for due payments;
- Risk Assessment: Automated risk assessment based on customer data and policy type;
- Report Generation: Generating reports for claims, payments, and customer statistics;
- Agent Management: Managing insurance agents, their profiles, and customer assignments;
- **Document Management**: Secure storage and management of policy documents and customer agreements;
- Customer Service Portal: Providing a portal for customers to inquire about policies and claims;
- Renewal and Cancellation Handling: Automating policy renewals and handling cancellations.

12. E-Learning Platform

- Course Creation and Management: Instructors can create, update, and manage online courses;
- Student Enrollment and Tracking: Managing student enrollments and tracking their progress;
- Interactive Learning Tools: Incorporating quizzes, assignments, and interactive content;
- Video Streaming: Streaming educational videos with support for various formats;
- Discussion Forums and Chat: Facilitating student and instructor interactions through forums and chat:
- Certification and Badging: Issuing certificates or badges upon course completion;
- Analytics and Reporting: Providing detailed analytics on student performance and course engagement;
- Content Access Control: Managing access permissions for different types of content;
- Mobile Compatibility: Ensuring the platform is accessible and functional on mobile devices;
- Payment and Subscription Management: Handling course fees, subscriptions, and financial transactions.

13. Sports Team Management App

- Team Roster Management: Managing player profiles, positions, and stats;
- Match Scheduling: Organizing and scheduling matches or tournaments;
- Performance Tracking: Tracking and analyzing player and team performance metrics;
- Injury and Health Monitoring: Monitoring player health and injury reports;
- Training Schedule Management: Organizing and managing training sessions;
- Equipment Inventory Management: Tracking and managing sports equipment;
- Player Recruitment: Managing the process of scouting and recruiting new players;
- Fan Engagement Tools: Features for fan interaction, such as polls and social media integration;
- Financial Management: Managing team finances, including budgets and expenditures;
- Media and Public Relations: Handling media releases and public relations activities.

14. Video Streaming Service

- Content Library Management: Managing a library of streaming content, including movies and TV shows;
- User Subscription Management: Handling user subscriptions, including free trials and payment plans;
- Personalized Recommendations: Offering personalized content recommendations based on user preferences;
- Multi-Device Streaming: Enabling content streaming across various devices;
- User Profile Management: Allowing users to create and manage multiple profiles;
- Parental Control Settings: Implementing parental controls for content filtering;
- Bandwidth Optimization: Adapting streaming quality based on user bandwidth;
- Bookmarking and Watch History: Allowing users to bookmark content and view their watch history;
- Content Rating and Reviews: Enabling users to rate and review content;
- Ad Integration and Management: Managing ad placements for ad-supported content.

15. Online Booking System for Hotels

- Hotel Listing Management: Hotels can list and manage their properties, including photos and amenities;
- Room Booking and Cancellation: Users can book, modify, and cancel reservations;
- Price and Availability Management: Dynamic management of room pricing and availability;
- Customer Profile Management: Creation and management of customer profiles;
- Payment Processing: Secure processing of payments with various payment options;
- Reviews and Ratings: Customers can leave reviews and ratings for hotels;
- Loyalty Program Integration: Managing loyalty programs and rewards for frequent customers;
- Multi-Language Support: Offering the booking system in multiple languages;
- Customer Support Interface: Providing support to customers for booking-related inquiries;
- Analytics and Reporting: Generating reports on bookings, occupancy rates, and revenue.

16. Social Networking Site

- User Account Management: Users can create, edit, and deactivate their accounts;
- Post Creation and Management: Users can create, edit, and delete posts, including text, images, and videos;
- Friend and Follower System: Managing friend requests and follower connections;
- Private Messaging: Enabling users to send private messages to one another;
- Group Creation and Management: Users can create and manage groups for shared interests;
- Event Planning and Invitations: Organizing events and sending out invitations to contacts;
- Content Filtering and Moderation: Implementing content filtering and moderation tools to maintain community standards;
- Notification System: Sending notifications about activities like comments, likes, and friend requests;
- Privacy Settings: Allowing users to control the privacy of their profiles and posts;
- User Analytics and Insights: Providing users with insights on their posts' reach and engagement.

17. Weather Forecasting System

- Weather Data Collection: Aggregating weather data from various sources;
- Forecast Generation: Generating short-term and long-term weather forecasts;
- User Location Services: Providing weather updates based on user location;
- Alert System for Severe Weather: Sending alerts for severe weather conditions;
- Historical Weather Data Access: Access to historical weather data and trends;
- Customizable Weather Widgets: Offering customizable widgets for websites and apps;
- Interactive Weather Maps: Displaying interactive maps with weather patterns and forecasts;
- Climate Analytics and Reporting: Providing analytics on climate trends and changes;
- User Feedback and Reporting: Allowing users to report local weather conditions;
- Multi-Language Support: Offering forecasts and information in multiple languages.

18. Customer Relationship Management (CRM) Tool

- Contact Management: Storing and managing customer contact information;
- Sales Pipeline Management: Managing the stages of the sales process;
- Activity Tracking: Tracking interactions with customers, such as calls and meetings;
- Task and Appointment Scheduling: Organizing tasks and appointments with customers;
- Email Integration and Campaign Management: Managing email communications and marketing campaigns;
- Lead Generation and Tracking: Tracking potential leads and their progress;
- Customizable Dashboards: Offering customizable dashboards for different user roles;
- Reporting and Analytics: Providing sales reports and customer analytics;
- Document Storage and Management: Storing and managing sales and marketing documents;
- Mobile Access and Integration: Ensuring CRM accessibility and functionality on mobile devices.

19. Online Food Delivery Service

- Restaurant Profile Management: Restaurants can manage their profiles, menus, and pricing;
- Order Placement and Management: Users can place, track, and manage their food orders;
- **Delivery Tracking**: Real-time tracking of food delivery status;
- Payment Processing: Integration with various payment methods;
- Customer Reviews and Ratings: Customers can rate and review restaurants and dishes;
- Promotion and Discount Management: Managing promotions and discounts offered by restaurants;
- Order History: Users can view their past orders and reorder favorites;
- Customizable Delivery Options: Options for delivery times and special instructions;
- Customer Support Interface: Providing support for order-related inquiries and issues;
- Analytics for Restaurants: Providing restaurants with insights on orders and customer preferences.

20. Car Rental System

- **Vehicle Inventory Management**: Managing the list of available rental vehicles, including details and pricing;
- Reservation System: Customers can make, modify, and cancel reservations;
- Customer Profile Management: Managing customer information and rental history;
- Payment Processing: Handling payments, deposits, and refunds;
- Rental Agreement Management: Digital creation and management of rental agreements;
- GPS and Vehicle Tracking: Integration of GPS tracking for rented vehicles;
- Maintenance and Service Records: Tracking maintenance and service history of vehicles;
- Pricing and Special Offers: Managing pricing, discounts, and special offers;
- **Damage and Incident Reporting**: System for reporting and managing vehicle damages and incidents;
- Customer Feedback and Reviews: Collecting and managing customer feedback on rentals.

21. Event Planning Software

- Event Creation and Management: Users can create, edit, and manage event details;
- Venue Booking: Integration with venue databases for booking and management;
- Attendee Registration: Online registration for attendees, including ticket sales;
- Schedule and Agenda Management: Creating and managing event schedules and agendas;
- Speaker and Performer Profiles: Managing profiles and information for speakers or performers;
- Vendor Management: Coordinating with vendors for services like catering and equipment;
- Email and Notification System: Automated email communications and notifications to attendees;
- Feedback and Survey Tools: Collecting attendee feedback post-event through surveys;
- Budget and Financial Management: Tracking and managing event budgets and expenses;
- **Social Media Integration**: Promoting events and engaging with attendees on social media platforms.

22. Gaming Platform

- Game Library Management: Managing a catalog of available games for users;
- User Account Management: Creating and managing user profiles, including preferences and settings;
- Multiplayer Matchmaking: Facilitating online matchmaking for multiplayer games;
- In-Game Purchases and Microtransactions: Handling in-game purchases and transactions;
- Leaderboards and Achievements: Tracking and displaying player rankings and achievements;
- Community and Social Features: Forums, chats, and social tools for player interaction;
- Game Update and Patch Management: Distributing game updates and patches to users;
- Parental Control Settings: Allowing parents to set restrictions on game access and purchases;
- User Support and Helpdesk: Providing support for technical issues and user inquiries;
- Cross-Platform Compatibility: Ensuring games are compatible across different devices and platforms.

23. Automated Trading System

- Market Data Analysis: Real-time analysis of financial market data;
- Trading Strategy Implementation: Users can implement and test trading strategies;
- Buy/Sell Order Execution: Automated execution of buy and sell orders based on predefined criteria:
- Portfolio Management: Managing and tracking investment portfolios;
- Risk Management Tools: Tools to assess and manage the risk exposure of investments;
- Backtesting Capabilities: Testing trading strategies against historical market data;
- Real-Time Alerts and Notifications: Notifications about market events and portfolio changes;
- Regulatory Compliance Features: Ensuring compliance with financial regulations;
- Reporting and Analytics: Detailed reports and analytics on trading performance and market trends;
- User Customization and Preferences: Allowing users to customize settings according to their preferences.

24. Fitness App

- Workout Plan Creation and Management: Users can create and manage personalized workout plans:
- Activity Tracking: Tracking user activities like steps, calories burned, and workouts;
- Nutrition and Diet Tracking: Logging and analyzing dietary intake;
- Goal Setting and Progress Tracking: Setting fitness goals and tracking progress towards them:
- Integration with Wearable Devices: Compatibility with fitness trackers and wearable devices;
- Social Sharing and Challenges: Enabling users to share progress and participate in challenges;
- Video Tutorials and Guides: Providing access to workout videos and instructional content;
- Personalized Recommendations: Offering personalized workout and nutrition recommendations;
- User Feedback and Rating System: Users can rate and give feedback on workouts and programs;
- Community and Forum Access: Access to a community forum for support and motivation.

25. Movie Ticket Booking System

- Cinema and Movie Listings: Displaying listings of cinemas and movies;
- Seat Selection and Booking: Enabling users to select seats and book tickets;
- Payment Processing: Secure processing of ticket payments;
- User Account Management: Creating and managing user profiles;
- Booking History and Cancellations: Viewing past bookings and managing cancellations;
- Promotions and Discounts: Offering and managing discounts and special offers;
- Real-Time Seat Availability: Showing real-time availability of seats in cinemas;
- Mobile Ticketing: Generating mobile tickets for ease of access;
- Customer Reviews and Ratings: Feature for users to rate and review movies;
- Notification and Alerts: Sending notifications for new releases and booking confirmations.

26. Task Management Tool

- Task Creation and Assignment: Users can create and assign tasks to team members;
- Deadline and Priority Setting: Setting deadlines and priorities for tasks;
- Progress Tracking and Updates: Tracking the progress of tasks and providing updates;
- Collaboration and Communication Tools: Tools for team communication and collaboration;
- File Sharing and Management: Uploading and sharing files related to tasks;
- Calendar Integration: Integrating with calendars for scheduling and reminders;
- Customizable Workflow: Customizing the workflow to match team processes;
- Notifications and Alerts: Receiving notifications for task updates and deadlines;
- Reporting and Analytics: Generating reports on task completion and team productivity;
- Access Control and Permissions: Managing access permissions for different team members.

27. Insurance Risk Assessment Tool

- Risk Profiling: Creating risk profiles based on customer data and history;
- Policy Matching: Matching customers with suitable insurance policies;
- Premium Calculation: Calculating insurance premiums based on risk assessment;
- Data Integration: Integrating with external databases for comprehensive risk assessment;
- Compliance Checking: Ensuring assessments comply with regulatory standards;
- Reporting and Analytics: Generating reports on risk assessments and policy matches;
- Historical Data Analysis: Analyzing historical data for better risk prediction;
- Customer Feedback Mechanism: Collecting feedback for continuous improvement;
- Scenario Analysis: Providing scenario analysis for different risk situations;
- User Interface for Agents: Easy-to-use interface for insurance agents to perform assessments.

28. Digital Wallet Application

- Account Linking and Management: Linking bank accounts and cards to the digital wallet;
- Secure Payment Processing: Ensuring secure transactions for payments;
- **Transaction History**: Viewing past transactions and payment history:
- Peer-to-Peer Transfers: Enabling transfers between users;
- Mobile Recharge and Bill Payments: Facilitating mobile recharges and bill payments;
- Balance and Credit Management: Managing wallet balance and credit limits;
- Rewards and Loyalty Points: Managing rewards and loyalty points for transactions;
- Security Features: Implementing security features like biometric authentication;
- Notification and Alerts: Alerts for transactions and account activity;
- Integration with E-commerce Platforms: Seamless integration with online shopping platforms.

29. Pet Adoption Platform

- Pet Profile Management: Managing profiles for pets available for adoption;
- Adoption Application Processing: Handling and processing adoption applications;
- Search and Filter Options: Enabling users to search and filter pets based on various criteria;
- Shelter and Rescue Organization Profiles: Profiles for shelters and rescue organizations;
- Educational Resources: Providing resources on pet care and adoption;
- Event Listing and Management: Listing events like adoption drives and fundraisers;
- User Account Management: Users can create and manage their accounts;
- Donation Processing: Facilitating donations to shelters and rescue organizations;
- Success Stories and Testimonials: Sharing success stories and testimonials from adopters;
- Community Forum: A forum for adopters and pet lovers to share experiences and advice.

30. Travel Itinerary Planner

- Itinerary Creation and Customization: Users can create and customize travel itineraries;
- Destination Information and Recommendations: Providing information and recommendations on destinations;
- Booking Integration: Integrating with booking systems for hotels, flights, and activities;
- Collaborative Planning Tools: Tools for collaborative itinerary planning with other travelers;
- Travel Guides and Resources: Access to travel guides and resources;
- Personalization Based on Preferences: Personalizing recommendations based on user preferences;
- Map Integration and Route Planning: Integrating maps for route planning and navigation;
- Expense Tracking and Budget Management: Tracking travel expenses and managing budgets;
- Mobile Access and Offline Functionality: Ensuring accessibility on mobile devices, including offline access;
- User Reviews and Community Input: Incorporating user reviews and community suggestions into planning;