

MIZAN TEPI UNIVERSITY

SCHOOL OF COMPUTING AND INFORMATICS DEPARTMENT OF SOFTWARE ENGINEERING

TITLE: "**Android-Based LocalJobSync**: Smart Job Board & Skill Advisory | ስማርት የስራ ማስታወቂያ ቦርድ እና የ ተፈላጊ ችሎታ ምክር"

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# ABSTRACTION

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**ABBREVATIONS**

* **MTU** - Mizan Tepi University
* **ETB** - Ethiopian Birr (Currency)
* **UML** - Unified Modeling Language
* **OOSAD** - Object-Oriented System Analysis and Design
* **OOA** - Object-Oriented System Analysis
* **OOD** - Object-Oriented System Design
* **DBMS** - Database Management System
* **HTML** – Hyper Text Markup Language
* **PHP** - Hypertext Preprocessor
* **PC** - Personal Computer
* **CD** - Compact Disc
* **DB** - Database
* **SQL** - Structured Query Language
* **CSS** - Cascading Style Sheets (for web design)
* **XAMPP** - Cross-Platform, Apache, MySQL, PHP, and Perl (Local server environment)
* **UAT** - User Acceptance Testing
* **GUI** - Graphical User Interface

CHAPTER ONE

## INTRODUCTION

In today’s competitive job market, traditional paper-based job advertisement and application methods are both inefficient and outdated. These processes make applying to multiple positions tedious and time-consuming, while the lack of centralization limits access to accurate, real-time information—slowing the job search. Many individuals, especially those aged 18–35, also struggle to identify the skills needed to stay competitive. Without clear guidance on improving employability, navigating the job market becomes challenging. Reliance on physical postings, confined to newspapers or bulletin boards, further restricts accessibility, causing missed opportunities.

**LocalJobSync** addresses these issues through a centralized, Android-based digital platform. It eliminates paper-based processes, making job listings accessible to all job seekers regardless of location. Users can view, apply for, and track openings in real time, ensuring a fast, transparent job search experience.

Beyond job search, **LocalJobSync** acts as a smart job board and skill advisory tool. It offers tailored recommendations for skills and career development, helping users improve their employability and competitiveness. Employers also benefit from a streamlined, cost-effective hiring process, accessing a broad pool of candidates matched by skills and qualifications.

By integrating job search and skill-building features, **LocalJobSync** modernizes employment practices, empowering job seekers and simplifying recruitment.

## background of the university

**Mizan Tepi University (MTU)** is a public, non-profit higher education institution established in 2006. Located in the town of Mizan, within Ethiopia's South West region, the university serves a population ranging from 10,000 to 49,999. MTU also operates branch campuses in Tepi and Aman.

Officially recognized by the Ethiopian Ministry of Education, Mizan Tepi University is a coeducational institution offering a variety of bachelor's degree programs across multiple disciplines. The university welcomes both domestic and international students for enrollment.

In addition to academic programs, MTU provides various facilities and services to support students, including a library and administrative services, enhancing both academic and campus life.

## background of the project

In recent years, unemployment and underemployment have become significant challenges, particularly among young adults aged 18–35. Many individuals in this age group lack adequate information about available job opportunities and the skills required to meet labor market demands. Additionally, businesses often face difficulties in finding the right candidates with the appropriate qualifications and experience.

The existing gap between job seekers and employers is exacerbated by the lack of centralized platforms that provide job listings, skill development recommendations, and personalized career guidance. With advancements in mobile technology, there is a growing need for innovative solutions to address these challenges.

The **LocalJobSync** project is designed to bridge this gap by offering a user-friendly, mobile-based platform that connects job seekers with employers while also recommending skills and training programs based on market trends. By integrating local job boards, advertiser tools, and skill advisory systems, this application aims to make job searching and recruitment more efficient and accessible.

This project also acknowledges the economic impact of employment and skill development, empowering individuals to enhance their abilities and align with market needs. Furthermore, employers can easily access qualified candidates, reducing hiring time and costs.

## team composition

**To accomplish this project, I’m going to** grouped Team into d/t group to simplifyworkflows and develop an effective and efficient app.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Group-Name** | **Role** | **Responsibilities** | **Skills Required** |
| 1 | **Project Manager** | Project Leader/Manager | Oversee project development, manage timelines, and ensure team coordination. | Leadership, Time Management, Communication |
| 2 | **Requirements Analyst & Documentation Writer** | Requirements Analyst & Documentation Writer | Gather project requirements, write documentation, and ensure clear communication of project scope. | Analytical Thinking, Technical Writing, Documentation |
| 3 | **Programmer** | Developer | Code the app, implement features, and ensure app functionality across devices. | Android Development, Java/Kotlin, Problem-Solving |
| 4 | **Designer** | UI/UX Designer | Design the app's user interface, ensuring usability, aesthetics, and responsive design. | UI/UX Design, Prototyping, Adobe XD, Figma |
| 5 | **Tester** | Quality Assurance & Tester | Conduct testing, debug issues, and ensure the app functions as expected. | Test Automation, Debugging, Attention to Detail |
| 6 | **Database Administrator (DBA)** | Database Management | Manage app data, design database structure, and ensure efficient data storage and retrieval. | SQL, Database Design, Data Management |
| 7 | **Advisor** | Advisory Role | Provide expert guidance on technical and project management aspects. | Industry Knowledge, Mentorship, Strategic Thinking |

Table 1.1Team Composition

## task and schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Phase** | **Method** | **Start Date** | **Stop Date** | **Compilation Time (Hr/Day)** |
| Data Gathering | Interview | Tahsas 01 | Tahsas 30 | 5 Day |
| Observation | 4 Day |
| *Document Analysis* | 20 Day |
| Data Analysis | Analysis | Tir 01 | Tir 30 | 20day |
| Documentation And Design |  | Yekatit 01 | Yekatit 30 | 28day |
| Implementation |  | Megabit 01 | Megabit 29 | 30day |
| Tasting | White Tasting | Megabit 30 | Miyazia 6 | 5day |
| Black Tasting | Miyazia 7 | Miyazia 15 | 6day |

Table 1.2 Task and Schedule

## statement of the problem

In today's competitive job market, young individuals, particularly those aged 18-35, face significant challenges in recognizing their potential and identifying the necessary skills or qualifications required for their career growth. They often lack clear guidance on how to improve their employability or acquire new skills that align with market demands. Additionally, many job seekers rely on traditional methods such as paper-based applications or outdated digital media, which can be time-consuming, inefficient, and difficult to navigate. The process of manually searching for job openings, applying for positions, and keeping track of application statuses is not only tedious but often results in missed opportunities and increased frustration.

Employers also face challenges in sourcing qualified candidates efficiently. The recruitment process is often complicated, involving the manual review of resumes and applications, which can lead to delays in hiring the right talent. Furthermore, the lack of a streamlined platform for employers to identify the best-fit candidates results in a lengthy and inefficient hiring process.

**LocalJobSync** aims to address these problems by offering an Android-based solution that automates and simplifies both the job search and recruitment processes. By providing a digital platform that matches job seekers with suitable employment opportunities and offers personalized skill development recommendations, LocalJobSync helps users enhance their employability. For employers, the app offers easy access to a pool of pre-qualified candidates, making the hiring process faster, more efficient, and more effective.

## objective of the project



### ***General Objective***

To Build Android-based **LocalJobSync** that provide platform that simplifies and enhances the job search and recruitment

### 1.6.2 Specific Objectives

* **User-Friendly Interface:** To ensure that both job seekers and employers can easily navigate and interact with the app, improving user experience and accessibility.
* **Data-Driven Insights:** To offer job seekers valuable insights into market trends, skill demands, and employment opportunities, helping them make informed decisions about their career path.
* **Job Search and Recommendation:** To provide job seekers with personalized job recommendations based on their skills, qualifications, and career goals, enabling a more efficient job search process.
* **Skill Development Guidance:** To offer tailored suggestions for skill development and qualifications that are in demand by employers, helping job seekers improve their employability and stay competitive in the job market.
* **Streamlined Job Application Process:** To create an easy-to-use platform where job seekers can apply to jobs with a single click, upload resumes, and track the status of their applications in real time, eliminating the need for manual, paper-based applications.
* **Employer Recruitment Efficiency:** To help employers access a pre-qualified pool of candidates based on specific job requirements, enabling them to find the best-fit candidates more quickly and with greater ease.
* **Real-Time Notifications and Updates:** To provide both job seekers and employers with real-time notifications on job openings, application statuses, and recruitment progress, ensuring timely communication and decision-making.

## 1.7 SCOPE OF THE PROJECT

The **LocalJobSync** project aims to create an efficient and user-friendly Android-based application that caters to both job seekers and employers. The project will focus on providing personalized job recommendations, skill development suggestions, and a streamlined recruitment process. Below are the detailed components of the scope:

### Platform Features and Functionality

The **LocalJobSync** platform will have the following key features and functionalities:

1. **User Profiles:**
   * Job seekers will be able to create profiles showcasing their skills, qualifications, work experience, and career aspirations.
   * Employers will create profiles to outline job openings, company culture, and specific candidate requirements.
2. **Job Matching Algorithm:**
   * A smart algorithm will match job seekers with relevant job openings based on their profiles, preferences, and skills.
3. **Skill Development Recommendations:**
   * Based on job seekers' profiles, the app will provide tailored advice on skills to improve or acquire, linking them to relevant courses, certifications, and resources.
4. **Job Application Process:**
   * Job seekers can easily apply for jobs directly through the app by uploading their resumes, cover letters, and other necessary documents.
   * Employers can review applications, shortlist candidates, and communicate with them through the platform.
5. **Real-Time Notifications:**
   * Both job seekers and employers will receive real-time notifications for job alerts, application status updates, interview invitations, and other relevant activities.
6. **Dashboard for Employers:**
   * Employers will have access to a dashboard where they can post jobs, track applications, and filter candidates based on criteria such as skills, qualifications, and experience.
7. **Job Search and Filters:**
   * Job seekers can search for jobs based on various filters such as location, salary, job type (full-time, part-time, internship), and industry.
8. **Career Insights:**
   * The app will offer data-driven insights into the latest market trends, salary benchmarks, and skill requirements, helping job seekers make informed decisions.
9. **User Support and Feedback:**
   * The app will provide customer support to help users with any issues related to job search, application process, or account management.
   * There will be an option for users to provide feedback to continuously improve the app's functionality.

### Geographical Coverage

Initially, **LocalJobSync** will focus on serving local job markets within a specific country or region, allowing the app to tailor its job opportunities and skill recommendations to local industries, demand, and regulatory requirements. The geographical coverage will be expanded over time as the app scales, incorporating more regions, and offering international job opportunities for users seeking employment abroad.

For the initial launch, the geographical coverage will include:

* **Local Markets:** Major cities and metropolitan areas in the chosen country, where job seekers have higher access to opportunities.
* **Regional Expansion:** Gradual expansion to other regions, ensuring that users across the country have access to the platform.
* **International Expansion (Future):** Expanding the platform to include international job opportunities, especially in neighboring countries or regions with similar employment landscapes.

### Stakeholder Engagement

Effective stakeholder engagement is crucial for the success of **LocalJobSync**. The key stakeholders involved in this project are:

1. **Job Seekers (Primary Users):**
   * Young individuals aged 18-35 seeking job opportunities.
   * Individuals who need guidance on developing skills to improve their employability.
2. **Employers (Recruiters):**
   * Companies and organizations that seek to hire qualified candidates for various positions.
   * Small and medium enterprises (SMEs) as well as larger corporations that need an efficient recruitment process.
3. **Educational Institutions & Skill Development Platforms:**
   * Partnerships with educational institutions and online learning platforms will be explored to provide skill development resources to job seekers.
4. **Government and Regulatory Bodies:**
   * Collaborations with local government bodies or employment agencies to align the app with labor market policies, certifications, and other regulations.
5. **App Development Team:**
   * A dedicated team of developers, designers, and product managers who will handle the technical and functional aspects of the app.
6. **Marketing and Business Partners:**
   * External partners involved in the marketing, promotion, and business expansion of **LocalJobSync**, including advertising agencies, local businesses, and media outlets.
7. **Investors or Funding Bodies:**
   * Organizations or individuals who will provide the financial support to develop and scale the app.

Stakeholder engagement will include regular communication and feedback loops to ensure the app meets the needs of all users and continues to evolve in line with market trends.

## FEASIBILITY STUDY OF THE PROPOSED SYSTEM

Feasibility is an important aspect of any project as it assesses the practicality, cost-effectiveness, and overall viability of the system from various perspectives. For the **LocalJobSync** platform, feasibility is analyzed in terms of economic, technical, operational, behavioral, political, and schedule aspects.



### Economic Feasibility

The **LocalJobSync** system is economically feasible because it offers a cost-effective solution to both job seekers and employers. By eliminating paper-based applications and manual recruitment processes, the system will significantly reduce operational costs for organizations. Furthermore, digitalizing the recruitment process will enhance operational efficiency, providing long-term value to stakeholders.

The **development costs** are expected to be moderate, ensuring that the project can be completed within budget while meeting functional requirements. The **budget** for the system is broken down as follows:

#### Budget Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Item** | **Quantity** | **Unit Cost (ETB)** | **Total Cost (ETB)** |
| **Development Costs** | Hosting (Cloud Server) | 1 year | 5,000 | 5,000 |
|  | Software Tools | - | 50,000 | 50,000 |
|  | Development Team Stipend | 6members | 20,000/month | 120,000 |
| **Subtotal** |  |  |  | **175,000** |
| **Equipment & Infrastructure** | Internet | 3 months | 1,000/month | 3,000 |
|  | Flash Drives (16GB) | 1 | 500 | 500 |
| **Subtotal** |  |  |  | **3,500** |
| **Miscellaneous** | Printing and Documentation | 100 pages | 5 | 500 |
|  | Contingency (10% of Total Cost) | - | 10% of 190,050 | 11,950 |
| **Subtotal** |  |  |  | **12,450** |
| **Grand Total** |  |  |  | **190,050** |

Table 1.3Total Budget Breakdown

* Development Costs: 175,000 ETB
* Equipment & Infrastructure: 3,500 ETB
* Miscellaneous: 12,450 ETB
* **Grand Total**: **190,050 ETB**

This budget ensures that the project is economically viable and sustainable, with reasonable costs allocated for development, hosting, infrastructure, and other necessary resources.

### Technical Feasibility

* **Available Technology:** The app will be developed using current Android development technologies, including Kotlin/Java for app development, Firebase or similar for backend services, and cloud-based solutions for data storage and web hosting.
* **Infrastructure:** The platform will rely on cloud hosting for scalability and high availability. The app will be supported by mobile devices running Android OS (version 5.0 and above), ensuring accessibility to a wide range of users.

### Operational Feasibility

* **User Readiness:** The target users (18-35-year-olds) are expected to be familiar with mobile applications and technology, making the app easy to use and adopt. Proper training materials and workshops will be offered to users and employers to ensure smooth onboarding.
* **Usability:** The app will have an intuitive, user-friendly interface designed for easy navigation and fast access to job listings, application processes, and skill development recommendations. Continuous user feedback will help improve usability.

### Behavioral or Political Feasibility

* The project is not expected to face significant political resistance, as it provides valuable services to job seekers and employers alike. Collaboration with local governments and regulatory bodies will ensure compliance with labor market policies and employment laws.
* Behavioral factors, such as the willingness of employers to adopt digital recruitment methods, will be addressed through awareness campaigns and training sessions.

### Schedule Feasibility

The timeline for the development and implementation of **LocalJobSync** has been outlined as follows:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Activity** | Tahsas 01 – Tahsas 17 | Tir 01 – Tir 30 | Yekatit 01 – Yekatit 30 | Megabit 01 – Megabit 30 | Miyazia 01 – Miyazia 15 | Miyazia 16 – Miyazia 30 |
| 1 | Project Proposal | X |  |  |  |  |  |
| 2 | Requirement Analysis |  | X |  |  |  |  |
| 3 | Design |  |  | X |  |  |  |
| 4 | Coding & Implementation |  |  |  | X |  |  |
| 5 | Installation Testing |  |  |  |  | X |  |
| 6 | Project Closure |  |  |  |  |  | X |

Table1.4 Schedule Feasibility

**Timeline Analysis:** The project is expected to be completed within four months, including requirement analysis, design, implementation, testing, and closure. Adequate resources are available to meet the scheduled milestones.

## SIGNIFICANCE of the project

The development of the **LocalJobSync** platform holds significant importance for multiple stakeholders, including job seekers, employers, educational institutions, and the broader economy. The project aims to address various challenges faced by young individuals in navigating the job market and employers in finding qualified candidates. Below are the key areas where the project will have a meaningful impact:

* **Enhancing Employability of Job Seekers**

One of the most critical outcomes of **LocalJobSync** is its ability to improve the employability of young individuals, particularly those aged 18-35. The platform will help users identify and acquire in-demand skills, bridging the gap between their current qualifications and the requirements of the job market. By offering personalized skill development suggestions and providing access to relevant courses, certifications, and resources, the app empowers job seekers to enhance their skills and improve their chances of securing meaningful employment.

* **Streamlining the Job Search Process**

Traditional job search methods, such as manual applications and paper-based processes, can be time-consuming and inefficient. **LocalJobSync** simplifies this process by offering a digital platform where job seekers can quickly apply for multiple positions with just a few clicks. The smart job matching algorithm will help job seekers find suitable job opportunities based on their skills, qualifications, and preferences, reducing the frustration and time spent searching for jobs.

* **Supporting Employers in Recruitment**

For employers, **LocalJobSync** provides an efficient and streamlined recruitment process. Employers can easily access a pre-qualified pool of candidates, tailored to their job requirements, which accelerates the hiring process. This reduces the time and resources spent on manual recruitment methods, such as reviewing resumes and conducting interviews for unqualified candidates. The platform's dashboard allows employers to filter candidates based on specific skills, experience, and qualifications, ensuring that they find the best-fit talent for their needs.

* **Reducing Employment Barriers**

The app also addresses barriers related to geographic location, limited access to job information, and unequal opportunities for job seekers. By providing a centralized platform that lists job opportunities across various industries and locations, **LocalJobSync** enables users to access employment opportunities that might otherwise be out of reach due to geographical limitations. This is particularly beneficial for individuals living in areas with fewer local job opportunities.

* **Bridging the Skills Gap**

There is often a mismatch between the skills job seekers possess and the skills employers require. **LocalJobSync** will help bridge this skills gap by offering tailored recommendations for skill development. By identifying the most in-demand skills in various industries and recommending resources to acquire these skills, the app will assist users in adapting to the evolving job market. This proactive approach helps individuals stay competitive and relevant in their chosen fields.

* **Contributing to Economic Growth**

By improving the efficiency of the job market and helping both job seekers and employers connect more effectively, **LocalJobSync** has the potential to contribute to the overall economic growth of the region. A more efficient job matching system leads to higher employment rates, reduced unemployment, and better job satisfaction, which, in turn, boosts productivity and economic development.

* **Promoting Digital Transformation in Recruitment**

The platform also supports the digital transformation of recruitment processes. With many employers shifting towards online hiring systems, **LocalJobSync** provides a modern, digital-first approach to recruitment. It encourages employers and job seekers to embrace technology, reducing reliance on traditional methods and contributing to a more dynamic, tech-savvy workforce.

* **User-Centered Design and Accessibility**

The app is designed with the end-user in mind, ensuring that both job seekers and employers can navigate the platform with ease. The focus on user-friendly design and accessibility helps make job search and recruitment processes more inclusive, ensuring that individuals with varying levels of digital literacy can benefit from the platform.

## TARGET BENEFICIARIES OF THE SYSTEM

The **LocalJobSync** platform will provide value to a variety of stakeholders, each benefiting from the app in different ways. The primary beneficiaries of the system include:

* **Stakeholder(MTU Business Incubation Center** **):**
  1. **Revenue Generation:** Through the 200 ETB transaction fee for every successful job placement, MTU will gain a sustainable source of income, encouraging further investment and support for projects that drive job creation and economic development.
* **Job Seekers:**
  1. Individuals actively looking for job opportunities who need guidance in skill development, career planning, and accessing employment opportunities.
  2. Students, recent graduates, and those seeking career transitions.
* **Employers (Recruiters, Organizations, Companies):**
  1. Small and medium enterprises (SMEs) and large corporations seeking to streamline their hiring processes and find the best-fit candidates for available positions.
  2. Human Resource (HR) professionals and recruitment teams who need an efficient way to screen, filter, and hire candidates.
* **Educational Institutions and Skill Development Platforms:**
  1. Organizations that provide education and training programs can collaborate with the platform to offer relevant courses, certifications, and skill-building opportunities to job seekers.
* **Government and Employment Agencies:**
  1. Government bodies and employment agencies that can leverage the platform to align with national employment policies, track job market trends, and promote skill development programs.

### BENEFITS

#### Tangible Benefits:

* **Revenue Generation for Stakeholder:**
* This Project provides an opportunity for revenue generation, particularly for stakeholders such as the **MTU Business Incubation Center**. As a key player in the ecosystem, the incubator receives a **200 ETB fee for each successful job placement**, creating a sustainable income stream. This revenue can be reinvested to support further incubator activities, foster innovation, and contribute to the growth of local businesses. The fee structure not only incentivizes the platform’s development but also ensures a continual flow of financial resources that benefits the broader community and stakeholders involved.
* **Increased Employability for Job Seekers:**
  + **LocalJobSync** will equip job seekers with the skills and qualifications needed to be competitive in the job market, directly enhancing their employability and career prospects.
* **Streamlined Recruitment Process for Employers:**
  + Employers can easily find pre-qualified candidates through the platform, reducing time spent on manually filtering resumes and managing applications. This leads to faster and more efficient hiring.
* **Cost Savings for Employers and Job Seekers:**
  + Employers will save on recruitment costs by using a digital platform instead of traditional methods like job fairs, advertisements, or manual hiring processes.
  + Job seekers will benefit from a free, centralized platform that reduces the cost of job searching (e.g., transportation for interviews or networking events).
* **Efficient Job Matching:**
  + The intelligent job-matching algorithm increases the chances of job seekers being matched with relevant positions, and vice versa for employers, optimizing the entire job placement process.
* **Access to Skill Development Resources:**
  + By providing links to relevant courses and certifications, **LocalJobSync** directly supports skill development, ensuring job seekers stay ahead in their fields.
* **Better Data Insights:**
  + The app will provide real-time data and insights into market trends, salary expectations, and skill demand, which will be valuable for both job seekers and employers.

#### Intangible Benefits:

* **Improved Job Satisfaction and Career Growth:**
  + Job seekers will experience a greater sense of accomplishment by finding roles that align with their skills and interests. This can result in long-term career growth and job satisfaction.
* **Reduced Frustration for Job Seekers:**
  + The app will alleviate the frustration associated with searching for jobs, applying manually, and waiting for responses. By providing a more user-friendly and efficient system, job seekers will have a more positive experience.
* **Enhanced Brand Image for Employers:**
  + Employers who use **LocalJobSync** can improve their reputation by demonstrating a commitment to efficient, modern hiring practices. The app helps companies be seen as innovative and proactive in their recruitment approach.
* **Community Engagement and Networking:**
  + By connecting job seekers, employers, educational institutions, and government bodies, **LocalJobSync** fosters a sense of community and collaboration within the labor market.
* **Social Impact and Economic Growth:**
  + On a broader scale, the platform will contribute to reducing unemployment rates and fostering economic growth by facilitating better employment matches and skill development. This has long-term social benefits, helping to build a more skilled and competitive workforce.
* **Better Job Market Transparency:**
  + By providing detailed insights into job opportunities, skill requirements, and trends, **LocalJobSync** promotes greater transparency in the job market, helping job seekers and employers make informed decisions.

## METHODOLOGY

A methodology defines the set of methods, processes, and practices used to deliver a project. For the development of this Web-based Dormitory Management System, **Prototyping** was chosen to clarify requirements and reuse software components, accelerating development timelines. This section outlines the data collection methods, sources, and how the collected data is analyzed.

The system development methodology is critical for organizing, planning, and controlling the project’s flow. Various methodologies are applicable depending on technical, organizational, and project team considerations. For this project, the **Object-Oriented Software Development (OOSD)** methodology was chosen.

* **Reasons for Choosing Object-Oriented Methodology:**
* **Modularity**: Objects are self-contained and can be easily modified, replaced, or reused, making the system adaptable.
* **Encapsulation**: Objects encapsulate both data and functionality, closely modeling real-world entities.
* **Reusability**: Promotes reusability not just of modules but also of complete system designs.
* **Maintainability**: System components can be modified or expanded without affecting others.

### Data Collection Methodology

Data collection is crucial for understanding the existing dormitory system and identifying system requirements. The following methods were employed:

* **Interviews**: We interviewed the internship advisor to understand the existing system and its limitations. Specific questions were prepared to extract necessary information.
* **Observation**: Team members observed daily dormitory operations, which helped gain insight into the system's challenges and provided context for system improvement.
* **Document Analysis**: Existing forms, documents, and regulations were reviewed to understand the current practices and organizational structure, as well as the dormitory system’s rules and constraints.

### Data Analysis Methodology

The project team analyzed the gathered information using **Unified Modeling Language (UML)** diagrams, such as **Use Case**, **Activity**, and **Class Diagrams**. The reasons for using UML are:

* UML is widely used to visualize and model object-oriented designs.
* It simplifies the process of converting designs into popular programming languages.
* UML diagrams are easy to decode, facilitating better communication between team members and stakeholders.

### System Analysis and Design Methodology

For system design and analysis, the project adopted **Object-Oriented System Analysis and Design (OOSAD)** due to the following advantages:

* **Encapsulation**: Ensures system components are independent, improving flexibility and maintainability.
* **Reduced Maintenance**: The system's modularity reduces long-term maintenance costs by enabling easier updates and reusability of components.
* **Real-World Modeling**: OOSAD provides a natural way of modeling real-world objects (like rooms, students, and payments), improving the system’s relevance and accuracy.
* **Improved Reliability and Flexibility**: New objects or behaviors can be created and integrated without impacting the overall system, ensuring better flexibility.
* **High Code Reusability**: New objects inherit attributes and behaviors from existing ones, making the system scalable and adaptable to future needs.
* **Ease of Understanding**: The object-oriented nature of the system makes it intuitive, allowing non-technical stakeholders to understand the system design and functionality easily.
* **Phases of Object-Oriented System Analysis and Design (OOAD):**

### Object-Oriented Analysis (OOA):

* + **Objective**: Identify system requirements, business objects, and relationships.
  + **Outcome**: Creation of a use-case model that defines the interaction between users and the system, helping us understand user needs.
  + **Focus**: Identifying classes and their relationships in the problem domain.

### Object-Oriented Design (OOD):

* + **Objective**: Design and refine classes, attributes, methods, and data structures identified during the analysis phase.
  + **Outcome**: Development of the user interface and data access layers, including definitions of classes that support the system's functions.
  + **Focus**: Finalizing class structures and updating the object model to reflect design improvements.

The results of OOAD activities include **analysis models** (from OOA) and **design models** (from OOD). These models will be continuously refined, driven by risk analysis and business value considerations, ensuring the system meets evolving requirements and objectives.

### Implementation ****methodology****

#### ****1. Hardware Tools****

|  |  |
| --- | --- |
| ****Tool**** | ****Purpose**** |
| **Personal Computer (PC)** | Required for coding, designing, testing, debugging, and building APK files. |
| **Smartphone (Android)** | For testing the APK on a real device to check performance, responsiveness, and compatibility. |
| **USB Cable** | Used to connect the smartphone to the PC for debugging and deploying the APK. |
| **Flash Disk/External HDD** | Optional for storing backups and transferring project files between systems. |

#### ****2. Software Tools****

|  |  |
| --- | --- |
| **Tool** | **Purpose** |
| **Android Studio** | **Primary IDE** for coding, designing, building, and testing Android apps. It includes emulators and SDK tools. |
| **Java/Kotlin** | Programming languages required for Android development. Kotlin is now the preferred language. |
| **XML** | Used for designing UI layouts and defining views. |
| **Gradle** | Build automation tool integrated into Android Studio to compile and package APK files. |
| **Firebase** | Optional for database integration, authentication, and analytics in Android applications. |
| **Postman** | For testing APIs during development to ensure data communication works correctly. |
| **Git/GitHub** | Version control system for source code management and collaboration with teams. |
| **Chrome DevTools** | Used for testing web components (if any) embedded within the mobile app. |

### ****Tools (For Documentation and Design)****

|  |  |
| --- | --- |
| ****Tool**** | ****Purpose**** |
| **MS Office Word** | For project documentation and reports. |
| **MS PowerPoint** | For presentations and project pitches. |
| **EdrawMax/Draw.io** | For designing UML diagrams, system architectures, and flowcharts. |

### ****Final Recommendations****

## limitation of the project

This defines what the proposed system is not going to perform or what is not including in the proposed system according to time and resources.

The limitations of our software product are listed below.

* It does not work offline or without Ethernet connection.
* Limited internet access in rural areas may restrict platform usage.
* Resistance to change among some stakeholders could hinder adoption.
* Budget constraints may limit the scope of initial features.
* The proposed system cannot access with local language.
* Only literate persons can use this system.

## Conclusion

The **LocalJobSync** application will revolutionize local job searches and skill development by combining a job board, advertiser platform, and skill advisory tools. This smart, Android-based solution will empower job seekers, employers, and advertisers to stay connected and grow effectively in today's dynamic market.

We believe this proposal outlines a scalable and impactful project that aligns with modern employment and business needs. We look forward to your support in bringing **LocalJobSync** to life.