Ethiopian Airlines Group

IT - Head Application Design and Delivery

SAP ABAP and Integration

College Trainee Development Program

Final Report

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1. Introduction

The Ethiopian Airlines Group College Trainee Development Program is, I believe, designed to equip recent graduates with practical, hands-on experience, bridging the gap between academic learning and real-world application. As part of this program, I was placed in the Corporate IT Division under the Head of Application Design and Delivery, specifically within the SAP ABAP and Integration Team. My role provided valuable exposure to essential business processes, technical workflows, and collaborative project execution in a corporate setting.

The program began with a comprehensive induction that included an overview of the organization's structure, mission, vision, corporate ethics, and communication skills. This was followed by a brief rotation across various IT departments, helping us understand the diverse roles within the division.

The main phase of the program, the On-the-Job Training (OJT), spanned from June 19, 2024, to Present (October 23, 2024). During this period, I worked on SAP ABAP development, focusing on understanding the team's processes, application design and delivery. Additionally, I was part of a project to develop a web-based Flight Security Clearance System using .NET Core and React/Next.js, further honing my technical and teamwork skills.

This experience has been invaluable, offering me critical technical expertise, industry knowledge, and professional development in an enterprise IT environment.

2. Learning Objectives

The primary objective of the College Trainee Development Program was to provide practical, real-world experience which enabled me to transition smoothly from academia to a professional work environment. The program aimed to bridge the gap between theoretical knowledge and practical application, equipping me with the technical, professional, and soft skills necessary to fully undertake my responsibilities.

My specific learning objectives were as follows:

- **To Gain Exposure to Corporate Ethics and Professional Conduct**

The program aimed to instill a sense of corporate ethics and professional conduct. This included understanding corporate values, adhering to ethical standards, and maintaining a high level of professionalism in communication and behavior.

- **To Have In-Depth Knowledge of Corporate IT Processes**

One of the key objectives was to understand the business processes and operational workflows within the Corporate IT division. I aimed to learn how different teams collaborate to meet business needs, how requirements are gathered and analyzed, and how project deliverables are executed within set timelines.

- **To Develop Junior Expertise in SAP, ABAP Integration and Full-Stack Development**

Part of the objectives for my training was centered on gaining hands-on experience in SAP ABAP development. This objective was focused on learning how to write efficient ABAP code, understanding data modeling, and gaining proficiency in the SAP environment.

Additionally, it focused on learning to utilize .NET Core and React/Next.js for a web-based project as part of a full-stack development team. It involved participating in the development of a project.

- **To Enhance Teamwork and Collaboration Skills**

The ability to work effectively as part of a team was a critical learning objective during the program. Throughout my training, I was assigned to multiple projects that required collaboration with cross-functional teams. I aimed to develop strong communication skills, improve my ability to collaborate with team members, and understand how to contribute to group objectives.

In conclusion, the learning objectives of the program were tailored to ensure that I developed not only technical competence but also the soft skills necessary to thrive in a professional corporate environment.

3. Project Description

During my On-the-Job Training (OJT) at Ethiopian Airlines Group, I had the opportunity to contribute to several key projects, gaining a comprehensive understanding of SAP ABAP development and full-stack software engineering. The experience was diverse and challenging, allowing me to apply theoretical knowledge to real-world scenarios.

- **ABAP Program for Bonus Calculation (Ethiopian Electric Power - EEP)**

The first project assigned to me involved developing an ABAP program to generate an ALV (ABAP List Viewer) report that calculates and displays bonuses for selected employees based on predefined parameters. This project came from Ethiopian Electric Power (EEP) with detailed functional requirement documentation. It served as an excellent introduction to SAP ABAP development, providing hands-on experience with data processing, ALV reporting, and understanding client-specific business needs.

- **SAP Integration for ALPHA (Addis Ababa Layover Passenger Hotel Assignment)**

The second project was more complex and involved integrating the Addis Ababa Layover Passenger Hotel Assignment (ALPHA) system with SAP. The project required receiving financial documents from ALPHA and automating the creation of service entries and entry sheets for the financial accounting system. This project expanded my technical expertise in SAP Integration, focusing on module programming, BDC (Batch Data Communication) recording, and RFC (Remote Function Call) implementation. Successfully completing this project significantly enhanced my understanding of how SAP interacts with external systems and laid the foundation for working on complex enterprise-level integrations.

- **Flight Security Clearance System (ET Group Security)**

For the last two months, I have been working as a full-stack developer on the Flight Security Clearance System, an internal project for the ET Group Security. The system is designed to automate the airline's security management operations, including flight clearance, weapon alert handling, incident reporting, and baggage handling. The project aims to reduce process duration, control costs, improve the quality of the security management process, and mitigate risks.

- **Objective**: The system automates security operations to enhance process efficiency, reduce costs, and improve quality. It includes features such as an aircraft security search checklist, weapon alert handling, resource management, and employee assignment scheduling.
- **Tech Stack and Role**: I served as a full-stack developer, utilizing React/Next.js for the frontend and .NET Core Web API for the backend. My role involved participating in all stages of the Agile DevSecOps process, from planning and designing to implementation and testing. We used Azure DevOps for task management, sprint planning, and backlog tracking, while the development process emphasized continuous delivery and secure coding practices.
- **Current Status**: We have successfully delivered two modules, Flight Clearance and Weapon Alert Handling, which are currently undergoing testing. The project is still in the implementation phase, and once completed, it will proceed to a wider integration and unit testing phase, followed by technical documentation, quality assurance, deployment, and operational support.

Through these projects, I gained valuable experience in SAP ABAP programming, system integration, full-stack development, and project management, while also enhancing my ability to work in an Agile team environment.

4. Skills and Knowledge Gained

Throughout the College Trainee Development Program, I gained a wide range of technical and professional skills that have greatly contributed to my development. These include:

- **Technical Skills**
    - SAP ABAP Development: I learned ABAP programming, focusing on ALV reporting, module programming, and BDC recording, helping me understand SAP system customization.
    - SAP Integration: I gained hands-on experience integrating external systems like ALPHA into SAP, automating complex financial processes.
    - Full-Stack Development: I developed skills in modern web development using React/Next.js for the frontend and .NET Core for the backend, allowing me to build scalable applications.
    - SDLC Understanding: I gained a thorough understanding of the software development life cycle, from planning to deployment.

- Agile Development: I worked with Agile and DevSecOps, participating in sprint planning, task management via Azure DevOps, and secure software development.
- Version Control (Git): I became proficient in Git for version control, ensuring effective collaboration, code reviews, and continuous integration within development teams.
- Testing & Debugging: I enhanced my testing and debugging skills, ensuring code reliability through unit and integration testing.

- **Professional Skills**

  - Project Management & Documentation: I learned to manage projects efficiently and document technical details for ongoing development.
  - Team Collaboration: Working in cross-functional teams improved my teamwork and communication skills, vital for successful project delivery.
  - Problem-Solving: I sharpened my ability to resolve complex technical issues.
  - Adaptability: I quickly adapted to new technologies and frameworks across different projects.
  - Communication: My verbal and written communication improved, particularly in explaining technical concepts to diverse audiences.
  - Utilization of ACE: My understanding of the main uses of ACE tools improved as I encounter issues that ACE tools solve.

These skills have prepared me for future roles in IT and software development.

5. Challenges Faced

During the College Trainee Program, several challenges arose, each providing an opportunity for growth and learning. The key challenges I encountered and how I addressed them are as follows:

- **Learning Curve with SAP ABAP**

  - Challenge: Initially, understanding SAP ABAP development was difficult due to its complexity and steep learning curve, especially for someone new to enterprise resource planning systems.
  - Solution: I dedicated extra time to self-study, sought guidance from experienced team members, and practiced by working on small projects and exercises to enhance my skills.

- **Complexity in SAP Integration**
    - Challenge: The SAP integration project, particularly automating the financial process with external systems like ALPHA, was complex and required a deep understanding of SAP modules and integration methods.
    - Solution: I overcame this challenge by collaborating closely with senior developers, breaking down tasks into manageable pieces, and leveraging available documentation and resources to build a better understanding of SAP integration.

- **Balancing Multiple Technologies (Full Stack Development)**
    - Challenge: Transitioning from SAP ABAP to full-stack development using React/Next.js and .NET Core posed a challenge, as it required learning and balancing multiple technologies simultaneously.
    - Solution: I focused on structured learning, dividing my time between frontend and backend development tasks, while utilizing tutorials and real-world coding examples to bridge the knowledge gap.

- **Time Management and Meeting Deadlines**
    - Challenge: Working in an Agile environment requires the ability to meet tight deadlines and manage multiple tasks effectively, which was challenging given the complexity of some projects.
    - Solution: I adopted time management strategies such as prioritizing tasks, following the Agile sprint process closely, and ensuring constant communication with my team to stay on track with deadlines.

- **Understanding Business Processes:**
    - Challenge: Gaining an in-depth understanding of the business processes that underpin the SAP and Flight Security Clearance System projects was initially overwhelming.
    - Solution: I addressed this by engaging in detailed discussions with team members, reading through process management documentation, and actively participating in team meetings to gain better clarity.

By overcoming these challenges, I was able to enhance my technical abilities, problem-solving skills, and ability to work efficiently in a professional environment.

6. Key Accomplishments

Throughout my College Trainee Development Program, I achieved several key accomplishments that highlight my contributions and learning outcomes:

- **Successful Completion of ABAP Projects**

I successfully completed two significant ABAP projects alongside my fellow trainee Mr. Lemi Melkamu. These projects involved developing an ALV report for calculating employee bonuses and integrating SAP with the ALPHA system. Our collaborative efforts received commendations from our coach, Mr. Geremew Worku, and our team leader, Mr. Tariku Wegayehu. The positive feedback not only validated our hard work but also fostered a sense of belonging and motivation to excel further in our roles.

- **Progress in the Flight Security Clearance System Project**

In our current project, the Flight Security Clearance System, I played a crucial role in successfully developing two modules: flight clearance and weapon alert handling. Completing these modules on time was a significant milestone, and I received excellent feedback from our lead developer, Mr. Habtamu Awoke. Our team's dedication and strong collaboration resulted in positive assessments from multiple stakeholders, including Mr. Shimelis Amanu, our Scrum Master, and Mr. Girum Birhanu, the Product Owner from Business Transformation. This recognition affirmed the effectiveness of our teamwork and the quality of our deliverables.

These accomplishments not only demonstrate my technical proficiency and collaborative skills but also reflect my commitment to contributing positively to the team's objectives and the organization.

7. Lessons Learned

My experience in the College Trainee Development Program has imparted several valuable lessons that will shape my professional approach in the future:

- **The Importance of Collaboration**

I learned that effective teamwork is crucial for the success of any project. Collaborating with my peers and senior colleagues not only enhanced the quality of our work but also fostered a supportive environment where we could share ideas and problem-solve collectively. In the future, I will prioritize open communication and collaboration to leverage the diverse strengths of my team members.

- **Adaptability to New Technologies**

The transition from SAP ABAP to full-stack development using .NET Core and React/Next.js taught me the importance of being adaptable and open to learning new technologies. In the fast-paced tech industry, being flexible and willing to expand my skill set is essential for growth and success. I plan to continue pursuing opportunities for professional development to stay current with emerging technologies.

- **Time Management and Prioritization**

Balancing multiple projects and meeting tight deadlines underscored the significance of effective time management and prioritization. I learned to break down tasks into manageable segments and set clear deadlines for myself. In future roles, I will implement these time management strategies to enhance my productivity and ensure timely project delivery.

- **Emphasis on Quality and Security**

Participating in the projects, it highlighted the necessity of quality and security assurance throughout the development process. I gained appreciation for testing and validation of deliverables to prevent issues in later stages. I will adopt a quality-first mindset in my future projects, ensuring that I allocate sufficient time for testing and feedback.

- **Continuous Learning and Feedback**

I recognized that continuous learning and actively seeking feedback are vital for personal and professional growth. The constructive criticism received from my coaches and supervisors motivated me to improve and refine my skills. Moving forward, I will embrace feedback as a tool for growth and actively seek opportunities for self-improvement.

- **Importance of ACE tools**

One significant lesson learned was the importance of utilizing ACE (Achieving Competitive Excellence) tools for improving business process efficiency. Through our self-study reading assignments and the monthly ACE meetings, we gained a deeper understanding of how ACE principles streamline workflows, optimize resource use, and enhance overall productivity.

By applying these lessons learned from my college trainee experience, I am confident that I will be better equipped to navigate the challenges of my future career and contribute effectively to any organization I join.

8. Recommendations

To enhance the College Trainee Development Program, I recommend the following:

- **Technical Skills Workshops or Classes**

Organize dedicated workshops or classes focused on the specific technical skills relevant to the trainees' roles. These hands-on sessions would provide in-depth training and practical experience on the tools and technologies they will encounter in their projects.

- **Cross-Functional Project Teams**

Encourage cross-functional teams for projects, allowing trainees from different areas to collaborate. This will promote knowledge sharing and help trainees appreciate the interconnectedness of various business functions. For example, there are trainees assigned to IT Security Operation Center (SOC). If we could have regular meetings and collaboration on specific security trends, we would have a wider understanding of how to incorporate the suggested security layers into our applications.

Incorporating these recommendations will better prepare trainees for their roles and enhance their overall experience in the program.

9. Conclusion

The College Trainee Development Program has been an invaluable experience, providing a solid foundation for my professional growth in the corporate environment. Over the course of my training in Corporate IT, particularly within the SAP ABAP and Integration team, I have gained crucial insights into organizational structure, business processes, and application design and delivery methodologies.

Through hands-on projects, including the successful development of an ALV Report for Ethiopian Electric Power and contributions to the Flight Security Clearance System, I have developed both technical and soft skills that are essential in the workplace. Collaborating with colleagues and receiving positive feedback from supervisors has instilled a sense of belonging and motivation.

The challenges faced during the program have taught me resilience and adaptability, further enhancing my problem-solving abilities. Overall, this program has not only equipped me with the necessary skills and knowledge but has also highlighted the importance of practical experience for new graduates entering the job market.

Moving forward, I believe the insights gained and the skills developed will serve as a strong foundation for my career endeavors, allowing me to contribute to Ethiopian Airlines effectively with the utmost professional setting.

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