



# St. Mary's University

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Guest entry management System

for Federal Police Commissions

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## **Introduction**

This is a report of an internship which was dealt in Ethiopian Federal Police commission in the department of software and website development found under Federal Police Technology Expansions head. In which I was participated in Website and Windows Application development.

## **Acknowledgement**

I would like to thank the Career and Internship Unit

I would like to the Federal Police Technology and my supervisor and last but not least my inter colleague

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# 1. Organization Related Issues

## 1.1 Background of the Organization

The Ethiopian Federal Police (EFP) is the law enforcement agency of the Federal Democratic Republic of Ethiopia. Established in 1995, it has objectives to maintain and safeguards public security and human and democratic rights and respecting constitutional law.

As autonomous organ, the EFP is surveyed by Ministry of Peace and administered by the Federal Police Commission enshrined under Proclamation No. 720/2011. Its office is headquartered in Addis Ababa with expectation to expand branches in every region thereof.

The Federal Police recently subjected to criticism and backlash over its inadequate and poor enforcing management as reflected in Article 52 of Federal Police Commission Administration. Unlawful use of force among officers appeared to be severe and most human rights organizations accused the government of neglecting investigation and accountability of those offended police officers.

Modern police force dates back in 1913 during Emperor Menelik II reign, which were colloquially called "Yeketema Zebegna" (City's Guard). It has since the department evolved to several reforms to meet demand at the time. The Ethiopian Federal Police (EFP) formed in the current form in 1995, and renewed its department under Proclamation No. 720/2011, which organized the Addis Ababa Police Commission (AAPC) under control of the Ethiopian Federal Police Commission (EEPC) to intensify dynamic institutional capabilities. In 2006 to 2010 national development plan, the Ethiopian government implemented justice system reform plan particularly for community policing, the Plan for Accelerated and Sustained Development to End Poverty (PASDEP). The first objective was to bring law enforcement institutions to boost efficiency and effectiveness in the new reform.

To check human rights issues related to police force, the National Human Rights Commission and an Ombudsman was established in 2000. The Federal Police Commission was established in June 2000 and enshrined the power to administer the Federal Police and the government adapted the Federal Police Commission division the Federal Police Commission Establishment Proclamation (FPCEP) No. 313/213. In accordance with Article 55(1) under Proclamation No. 720/2011, the Constitution guarantees the Commission to work as autonomous federal organ

having its own legal personality, which is accountable to Ministry of Peace. Its seat is based in Addis Ababa and if necessary, office branches could expand in every region.

#### **1.1.1 Vision**

To see the institution ranked among the top five police institutions in Africa by 2022 and a modern police service that is professional, inclusive and trustworthy.

#### **1.1.2 Values**

##### **1. Professionalism**

The value of professional competence is the value of fulfilling the highest level of knowledge, skills and attitudes that enable police members in various ranks and structural organizations to fulfill their public mandate by protecting the peace and security of the community and creating an environment free from crime and the threat of crime.

The value of Police Professionalism is Service Excellence, Participatory and Partnership. In addition, it is a value that requires and embraces the implementation of police work by including the basic principles of Transparency and Accountability, non-acceptance of influence and interference, and the ability to work independently in daily police work.

##### **2. Integrity**

Integrity is one of the most important values in police work. Loyalty means having a firm belief in carrying out police work with superior moral competence, honesty, sincerity and the spirit of service. This value is a human and police competence display value that encompasses the ideas of being faithful to the community, the country, the law and oneself, and keeping good faith.

##### **3. Respect for Diversity**

The value of respecting diversity is the value of having a firm belief in serving with respect to people of different race, ethnicity, color, gender, age, social and economic status, physical and mental ability, religion/belief, political position and belief or ideologies.

The value of respecting diversity is a value that contains the ideals of providing police services with equality and impartiality, using the approval of the public for the effectiveness of police work, and building partnerships on good relations.

#### 4. Respect for Human Rights

The value of respecting human rights is to unconditionally respect the inviolable and inalienable rights that human beings have only because they are "human" at all times, places and conditions. Non-violation of citizens' rights includes the police profession and the unconditional application of the powers obtained by being a police officer.

Therefore, the value of respect for human rights includes the ideas of any police respecting human rights laws equally, treating the victims of crime with compassion and dignity, not using methods and methods of investigation that are not related to the human rights of criminal suspects, not using force unless it is deemed necessary, and using proportional force when necessary.

##### 1.1.3 Mission

The main mission of the Federal Police is to ensure the peace, security and justice of the people of our country and ensure their economic and social prosperity in the long run by making service delivery adaptable to the existing national conditions as well as local and international changes and by building a competent police institution to ensure peace, security and the rule of law in the country.

##### 1.1.4 Motto

To wait bravely, Serve with humanity! (Protect With Courage, Serve with Compassion!)

##### 1.1.5 Nature of the Business

The EFP was created with the objective to maintain public security, ensure the observation of human and democratic rights. Its duties include:

- Enforcement of laws and safeguarding constitutional guarantees
- Prevention, detection and investigation of crime
- Coordination of national state police commissions and development of national policing standards
- High level training and operational support to regional police commissions

#### 1.1.6 Services

- Prevent and investigate crime that fall under the jurisdiction of Federal Courts
- Prevent any activities in violation of the Constitution that may endanger the Constitutional order
- Prevent violence against public peace, hooliganism, terrorism, trafficking in and transferring of drugs
- Prevent crimes against the interests and institutions of the Federal Government
- Without prejudice to Sub Article (2) of Article, maintain law and order in any region in accordance with the order of the Federal Government when there is a deteriorating security situation beyond the control of the concentrated region and a request for intervention is made by the region; or when disputes arise between two or more regions and the situation becomes dangerous for the Federal security
- Safeguard the security of borders, airports, railway lines and terminals, mining areas, and other vital institutions of the Federal Government
- Give security protection to higher officials of the Federal Government and dignitaries of foreign countries
- Execute orders and decisions of courts
- Execute orders issued by the Federal Public Prosecutor in regard to investigation of crimes
- Issue a certificate of no criminal record

#### 1.1.7 Number of Employees

According to Wikipedia, By 1974 the national police numbered approximately 28,000 in all branches, including 6,000 in the Mobile Emergency Police Force, 1,200 frontier guards, and a 3,200-member commando unit with rapid reaction capability. The Federal Republic of Germany (West Germany) supplied the paramilitary police with weapons and vehicles and installed a nationwide teleprinter system, while Israeli counterinsurgency specialists trained commandos and frontier guards. About 5,000 constabulary police, mostly recruited locally, served in Eritrea, as did 2,500 commandos. The federal police had a goal of increasing its manpower to more than 50,000 by the year 2017 G.C, however this goal was not met at the time.

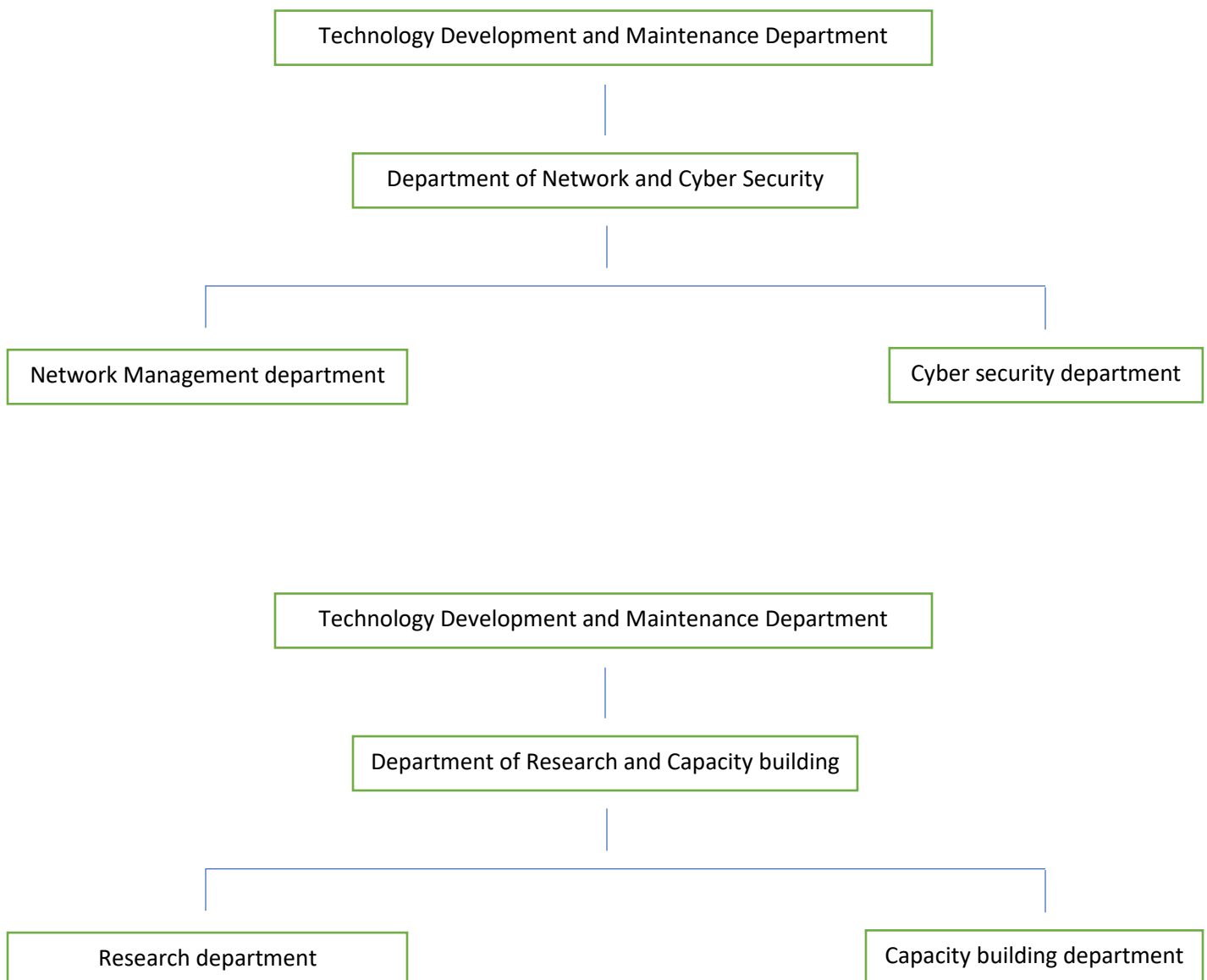
Currently It estimates its own size more than 30,000 personnel.

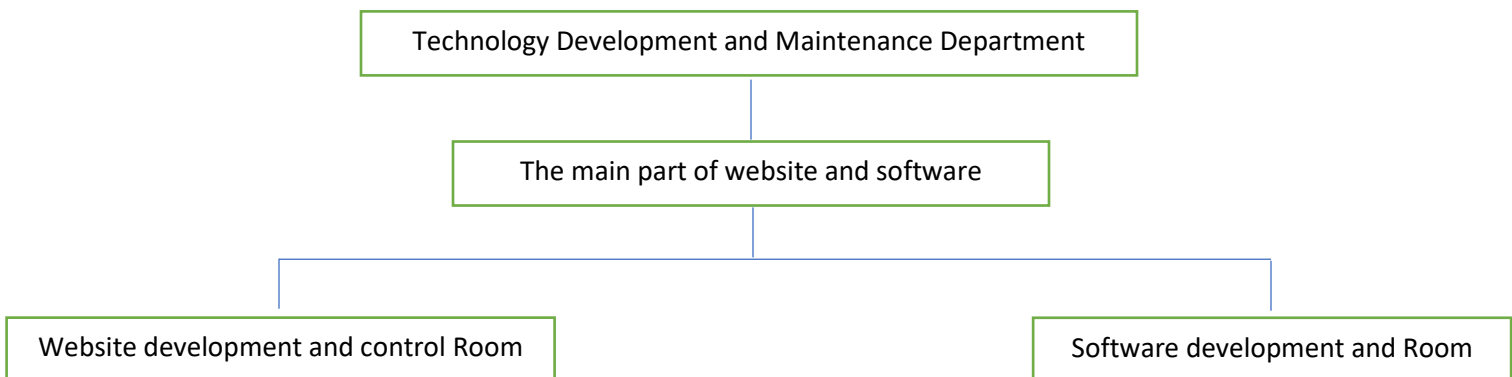
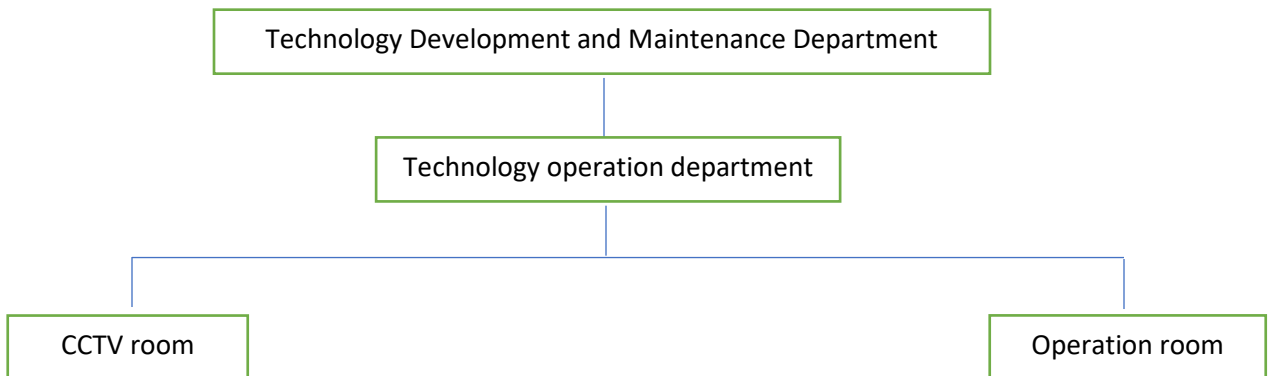
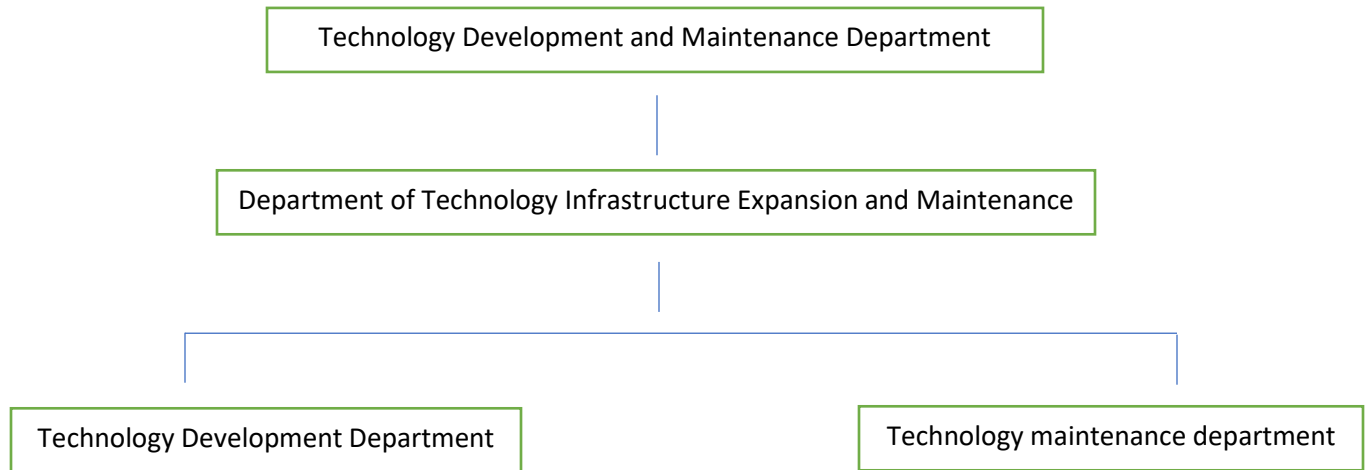


## 1.2 Background of Field of Practices

As Ethiopian federal police is established to maintain peace and stability in the city, it has a major responsibility to advance its power through any element of the facility generating manpower adapting new technology to give better service and develop the institution in every aspect the institution is currently investing in the Ethiopian federal police technology expansion department Head which has recently been more noticeable. It is implementing new technologies such as CCTV for the city and software development to enhance crime investigation.

### 1.2.1 Structure of the Department





## **The Software development and Room consists of**

### **Full-Stack Developers**

Full-Stack Developers carry out the actual software development tasks, tying together the application interface and its business logic.

### **Backend developers**

Backend developers work on the server side of a website or any other software product. Specifically, user query processing, all resource-intensive calculations, communication with other apps (or websites, or devices), and more – everything that makes an end product act as a single (organism or unit)

### **Frontend developers**

Frontend developers build all the application interface elements that a user interacts with. A cross-platform PC application or a web-based one must adapt to every screen size and resolution that displays it.

### **Quality Assurance**

Quality Assurance (QA) Engineers take care of polishing the end product, generally speaking. Developers cannot imagine all the possible states that their application can be in. They can't imagine how an app can be misused because they focus entirely on how it can be used to solve a given problem.

### **Tech Writer**

Another role that is not often mentioned in the guidebooks is Tech Writer. In the good old days, developers used to write all the documentation themselves (and not included in the code to be seen by the collaborating developers). This practice is not entirely gone nowadays.

So writing and documentation could be done by tech writer

### 1.2.2 Organization's Activities

This department is mainly focused on transforming of the institution to a digital era by minimization of documentation work designing building testing deploying and maintaining of software products. As the organization has a vision to establish a world class investigation and service giving approach this department has a huge impact on the organization's future.

The main Activities in this department can be stated as following: -

- Gathering requirements to understand and document what is required by users and other stakeholders.
- Choosing or building an architecture as the underlying structure within which the software will operate.
- Developing a design around solutions to the problems presented by requirements, often involving process models and storyboards.
- Building a model with a modeling tool that uses a modeling language like SysML or UML to conduct early validation, prototyping and simulation of the design.
- Constructing code in the appropriate programming language. Involves peer and team review to eliminate problems early and produce quality software faster.
- Testing with pre-planned scenarios as part of software design and coding and conducting performance testing to simulate load testing on the application.
- Managing configuration and defects to understand all the software artifacts (requirements, design, code, test) and build distinct versions of the software. Establish quality assurance priorities and release criteria to address and track defects.
- Deploying the software for use and responding to and resolving user problems.
- Migrating data to the new or updated software from existing applications or data sources if necessary.
- Managing and measuring the project to maintain quality and delivery over the application lifecycle, and to evaluate the development process with models such as the Capability Maturity Model (CMM).

The steps of the software development process fit into application lifecycle management (ALM). The IBM Engineering Management solution is a superset of ALM that enables the management of parallel mechanical, electrical and software development.

1. Requirements analysis and specification
2. Design and development
3. Testing
4. Deployment
5. Maintenance and support

Software development process steps can be grouped into the phases of the lifecycle, but the importance of the lifecycle is that it recycles to enable continuous improvement. For example, user issues that surface in the maintenance and support phase can become requirements at the beginning of the next cycle.

## 2 Actual Practice (Work Exposure)

During my internship at Federal Police commissions headquarter. from all the different department of Ethiopian federal police technology expansion department Head I chose to attend at software development department

### 2.1 Work Performed

The work I did throughout the Internship program may be grouped depending on the eight-week time period.

#### 2.1.1 Week one (11/07/2022 – 15/07/2022)

As it was the first week of my internship, I had the opportunity to meet with my supervisor for the first time and learn more about the department, and he assisted me in learning and understanding the software development environment, the tasks that await me, and the mindset that I should have. My first few days were fantastic. I spoke with the majority of the team, and everyone was extremely friendly. It was a breeze to settle into their office. I also had a few other students working with me on an internship, and we were able to support each other.

We learned more about the codebase after becoming acquainted with the company and comfortable with the team. As someone who has only worked on small projects on my own or with other students, the codebase of a product that will be used by hundreds of thousands of people was quite intimidating. The language they used was PHP, JavaScript, with React Vue Angular Express Laravel as a frame work.

My team members and I are most familiar with PHP and C#. So they told us that we would be using Laravel, which neither me nor my team mates were familiar with, and that they would begin by teaching us.

#### 2.1.2 Week Two (18/07/2022 - 22/07/2022)

During this week, we were assigned a project title: guest entry management system, which is intended to reduce paper work, increase security, and save time for guests and intern students. Then we had a brief discussion on the software development life cycle and the ways we would take to get our feet wet in the development environment. And how we should prepare ourselves for the journey ahead to understand these new frameworks.

Shortly after we also started learning basic software development life cycle and introductions of the frameworks we will be using

#### 2.1.3 Week Three (25/07/2022 - 29/07/2022)

Our major goal this week was to do a requirement analysis and create proposal documentation for our project. During the requirement analysis, which took about two days, we were able to meet with higher-level security officials and obtain as much information as we needed for our project by asking them about the challenges, they face with the current way of managing guests, as well as how they want this problem to be resolved. We also got the opportunity to speak with the shift controller and the recipients who assisted us in doing more research.

We also managed creating the design overall project design creating the user interface for the website as well as the Windows application and logics to follow while interacting with the back end breaking down the project's complexity into manageable functions

We also learned about version control systems like GitHub and practiced managing minor projects.

#### 2.1.4 Week Four (01/8/2022 - 05/08/2022)

This week was dedicated to learning those new frameworks and working on simple projects with our supervisor in order to comprehend the principles of the Frameworks.

When I initially started studying programming, I considered learning a new Framework as a huge, time-consuming effort, but as I've explored more, I've found that knowing a Framework means having new methods, principles and ways of accomplishing tasks in an easy way, and it's really simple to get started with a Framework if you know the language well.

#### 2.1.5 Week Five (08/8/2022 - 12/08/2022)

This week, I was able to contribute to the architecture of the database by identifying tables, establishing relationships, and controlling data flow. This week, Later, I worked on the design of the Windows application user interface. During this phase, we were able to create the window forms and user controls, while also learning Entity Framework, which we used to work with data in the form of domain-specific objects and properties, such as customers and customer addresses, without having to worry about the underlying database tables and columns where this data is stored.

#### 2.1.6 Week Six (015/8/2022 - 19/08/2022)

This week, I worked on the back end of a Windows application, using C# as the base language and Entity Framework to retrieve data from the underlying database with LINQ queries. Making a function that we built to be applicable in the domain of store creation, update, create, and deletion. Crystal Report is used to create reports.

#### 2.1.7 Week Seven (22/8/2022 - 26/08/2022)

This week we made a focus on the website Development using Laravel frame work building in terms of:-

1.Views which is blade view and which can be categorized as follows

- Components
- Partial
- Specific views
- Errors
- vendor

## 2. building the over all flow of the website

- Routes
- Controllers for specific models

## 3. building database using SQL server

- Seeders
- Migrations
- Factories
- Eloquent Model

### 2.1.8 Week Eight (29/8/2022 - 02/09/2022)

This week we were trying to integrate the website with the desktop application and implementing of test this week was important because it was the week that final product was intend to be submitted

## 2.2 Educational Value of the Internship

As I have seen, the professional area of software development continually necessitates additional exploration of new technologies frameworks and other things because the sector is now evolving rapidly and we must always update ourselves.

The educational value that I have gained from my internship is that I have learned about two frameworks, which are briefly stated below.

Learning Laravel and Entity has brought some difficulties. But, with the assistance of our supervisor, I was able to cope with him.

### 1 Laravel framework

is a web application framework with expressive, elegant syntax. A web framework provides a structure and starting point for creating your application, allowing you to focus on creating something amazing while we sweat the details.



Laravel strives to provide an amazing developer experience while providing powerful features such as thorough dependency injection, an expressive database abstraction layer, queues and scheduled jobs, unit and integration testing, and more.

First, we started viewing the basics of the Framework which are

- The Basics
- Routing
- Middleware
- CSRF Protection
- Controllers
- Requests
- Responses
- Views
- Blade Templates
- Asset Bundling
- URL Generation
- Session
- Validation
- Error Handling
- Logging

Then, as we continue to explore, we catch a glimpse of

- Artisan Console
- Broadcasting
- Cache
- Collections
- Contracts
- Events
- File Storage
- Rate Limiting
- Task Scheduling
- Helpers
- HTTP Client
- Localization
- Mail
- Notifications
- Package Development
- Queues

Later we touched some areas in the security

- Authentication
- Authorization
- Email Verification
- Encryption

- Hashing
- Password Reset

Additionally, the database area consists of

- Query Builder
- Pagination
- Migrations
- Seeding
- Redis
- Eloquent ORM
- Getting Started
- Relationships
- Collections
- Mutators / Casts
- API Resources
- Serialization
- Factories

## 2. Entity framework

is an open-source ORM framework for .NET applications supported by Microsoft. It enables developers to work with data using objects of domain specific classes without focusing on the underlying database tables and columns where this data is stored. With the Entity Framework, developers can work at a higher level of abstraction when they deal with data, and can create and maintain data-oriented applications with less code compared with traditional applications.

Entity Framework core concepts in which I had to learn are stated as following

- Cross-platform
- Modelling
- Querying
- Change Tracking
- Saving
- Migration
- Concurrency
- Transactions
- Caching
- Built-in Conventions
- Configurations

### 2.3 Relationships

The knowledge I gained in the classroom has served as a basis for my future endeavors. In class, I learnt about PHP, as well as MySQL and SQL databases, which are used by the framework Laravel. I also studied c#, which helped me comprehend Entity Framework better. So, overall, the courses I've taken in class have aided me during the internship.

## 3 Summary and Conclusion

### 3.1 Summary

For the last two months, I've had a good concept of what an actual software development environment looks like and how the work flow looks like from the beginning of the requirement analysis. To the delivery of the final product and along the way, I have observed many things such as teamwork, timeliness, communication capacity, the ability to offer my ideas to the table, and the ability to finish works on time

### 3.2 Conclusion

In conclusion, First and foremost, I would like to thank my university and the Career and Internship Unit for providing us with the opportunity to do an internship. This internship has given me great knowledge about the field I am interested in, which is software development, and it has taught me that there is a lot more to learn, that we cannot settle once we know something, that we must dig deeper and deeper, and that the field requires us to keep up with current technology.

