

**Imam Mohammad ibn Saud Islamic University**

**College of Computer and Information Sciences**

**Information Systems Department**

**AOUN**

**By:**

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Yazeed Ayman Kordi, 442020048, 076, Group 06

**Supervised by:**

Prof. Abdul Kader Jilani Saudagar

Project Submitted in Fulfillment for the IS495 Course requirements

Semester-Year



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|  |  |
| --- | --- |
| **Supervisor Name** | Prof. Abdul Kader Jilani Saudagar |
| **Date** |  |
| **Signature** |  |

# Declaration

We Saleh Jamal Almutairi / 442015756, and Yazeed Ayman Kordi / 442020048 being members of final year project group number 06, declare that this report contains only work completed by members of our group except for information obtained in a legitimate way from literature, company or university sources. All information from these other sources has been duly referenced and acknowledged in accordance with the University Policy on Plagiarism.

Furthermore, we declare that in completing the project, the individual group members had the following responsibilities and contributed in the following proportions to the final outcomes of the project:

|  |  |  |  |
| --- | --- | --- | --- |
| **Student ID** | **Responsibilities[[1]](#footnote-1)** | **Contribution[[2]](#footnote-2) %** | **Signature** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Abstract

[Give a complete but concise description of your work. It is a brief overview of your motivation, statement of purpose, general methodological approach, major results, discussion and conclusion.

Must not exceed one page and not less than 150 words. ]

# Abstract (in Arabic)

# 

أكتب مستخلص المشروع الخاص بك باللغة العربية بحيث لا يقل عن 150 كلمه

# Keywords

[List the main keywords in your project if there are any]

Sample:

Web Application, Management System, Ontology, Data Mining, Cloud Computing, Sound Recognizer Application.

# List of Abbreviations

**SDLC:** Software Development Life Cycle.

**IS:** Information System.

**UI:** User Interface.

**GDP:** Graduate Development Program.

**OS:** Operating System.

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# Chapter 1: Planning

## 

## 1.1 Project Overview

[Give a comprehensive overview of your graduation project. Start with your motivation to do the project and the purpose of the project. Then provide a summary of project approaches to complete the project. Conclude the overview with the major results you have achieved]

Aoun application is designed to streamline the process of finding cooperative training opportunities for university students nearing graduation. By bridging the gap between students and companies, Aoun simplifies the search and application process, making it more efficient for both parties.

With Aoun, students can effortlessly search and apply to companies offering cooperative training programs that align with their academic background and career aspirations. The application provides a centralized platform to explore various opportunities, ensuring students find placements that are a perfect fit for their skills and goals.

Aoun serves as a valuable resource for companies seeking talented and eager trainees from universities. By posting training opportunities on the Aoun platform, companies can specify their requirements and await applications from qualified students. This not only enhances the visibility of their programs but also streamlines the selection process.

Aoun functionality extends beyond merely connecting students with training opportunities. Once a student secures a placement, the application facilitates ongoing communication and feedback between the company's trainers and the student's university supervisor. Trainers can submit weekly reports or other necessary documentation directly through Aoun, enabling supervisors to monitor the student's progress and provide support as needed.

Aoun application represents a comprehensive solution for students and companies involved in cooperative training programs. By simplifying the search, application, and feedback processes, Aoun ensures that students can maximize their learning experiences, while companies benefit from a streamlined approach to finding and nurturing talent.

## 1.2 Problem Statement

The core issue driving the development of the Aoun Project is the significant gap in the accessibility and management of cooperative training opportunities for students nearing graduation. This gap manifests in two primary challenges: first, the lack of a centralized platform where students can discover organizations offering co-op positions relevant to their field of study; and second, the inconventient process of submitting and managing weekly reports for both students and supervisors.

The consequences of not addressing this problem are multifaceted and far-reaching. For students, this gap represents a missed opportunity in gaining vital hands-on experience, enhancing their employability, and bridging the theory-practice divide that is crucial for their transition into the workforce. For educational institutions and employers, the inefficiency and lack of coordination can result in a talent mismatch, underutilization of eager and capable students, and ultimately, a slower pace in addressing the skills gap in various industries.

The need for a solution like the Aoun Project is underscored by evidence from academic studies and labor market analyses that highlight the growing importance of cooperative education. For instance, research indicates that students who participate in co-op programs are more likely to secure employment upon graduation, often with higher starting salaries (National Association of Colleges and Employers, 2020). Additionally, organizations that provide cooperative training opportunities report higher retention rates among employees who participated in these programs as students, underscoring the mutual benefits of such initiatives (Journal of Vocational Education & Training, 2019).

By facilitating easier access to cooperative training opportunities and streamlining the reporting and management process, the Aoun Project aims not only to enhance the educational outcomes for students but also to contribute to a more skilled and ready-to-work graduate pool. This, in turn, supports the broader goal of strengthening the link between academia and industry, thereby fostering a more dynamic and responsive workforce.

## 1.3 Project Impact

[Address the intended impact you wish your system after implementation and operation will have on society and environment (in local and global context).]

Upon implementation, our platform is positioned to majorly impact the Information Systems (IS) department. By providing a comprehensive framework to enhance Co-op programs, we aim to curate a more professional and skilled workforce, better equipped to meet the needs of modern companies. This initiative not only strengthens individual students' skills but also contributes to the overall advancement of the IS field.

On a global scale, our ambition is to establish our platform as the standard across all universities worldwide. The broad implementation will revolutionize recruitment practices globally, ensuring a more effective and efficient matching of talent with opportunities. By bridging the gap between academia and industry, our platform will play a integral role in shaping the future workforce, making it more agile, and ready for the challenges of the future.

## 1.4 Project Stakeholders

### 1.4.1 Students

The **Aoun** platform is primarily intended to benefit students, with a focus on student-centered design. For students, the platform creates new opportunities by streamlining the Co-op training program application process. It successfully resolves the issues with the present application system, such as the inability to find opportunities, guaranteeing that students may efficiently and easily apply for training programs.

### 1.4.2 Faculty

Faculty members with the correct tools to systematically supervise and review students, promoting a structured approach that fosters a conducive environment for continuous student improvement. This systematic approach not only enhances the quality of supervision but also creates opportunities for faculty to provide targeted feedback and support, leading to a more enriching training experience for students. By facilitating a better environment for constant evaluation, the platform plays a pivotal role in the holistic development of students, ensuring they are well-prepared for their future endeavors.

### 1.4.3 Companies

**AOUN** optimizes the registration of co-op programs for companies, simplifying the process of discovering suitable student candidates, sanctioning efficient acceptance or rejection workflows. It enables easy scheduling and conduction of follow-up interviews, all while significantly reducing the reliance on hard copies and signatures for weekly or monthly reviews. This solution is designed to enhance the professionalism and success of co-op program management.

## 1.5 Objectives

**AOUN** goal is to help students find cooperative training easily, as well as help companies find students for training, and this is done by achieving the following objectives:

* Enhance the co-op program application and training for students to access and utilize co-op training opportunities by enabling a smooth process between companies and students.
* Streamline the administration of co-op programs for trainers by creating strong, three-way channels of communication between companies, faculty, and students.
* Optimize the co-op evaluation process that enables faculty members to review evaluations, organizing the students’ evaluation process, and allows trainers to approve forms submitted by students, ensuring thorough assessment and continuous improvement.

## 1.6 Approach

[Explain project approach that will be used for different project aspects.]

In our project, we adopted the waterfall approach, which is a traditional methodology and methodology within the software development life cycle (SDLC). The waterfall model is known for its linear and sequential progression, which ensures that all phases are completed before the next one starts, thus creating a clear structure for our project execution. This method has been proven to be effective in various software engineering and product development projects, making it an ideal choice for achieving our goals.

The reasons why we chose the waterfall approach is that the requirements are clear and well-known, and the solution to our problem is straightforward.



Figure 1:Waterfall Approach.

Planning Phase**:** This stage involves thorough discussions to define our project idea and the problem we aim to solve. We evaluate the system's benefits, drawbacks, and expected performance, aiming to align our goals with user needs and expectations.

Analysis Phase: We then collect system requirements through stakeholder interactions, employing brainstorming, interviews, and questionnaires. Our objective is to create a complete list of requirements, guaranteeing that the final product meets all user necessities.

Design Phase**:** Next, we analyze the requirements to understand them deeply, translating this information into a structured model for guiding subsequent design and development.

Development Phase**:** With a clear understanding of requirements, our development phase involves coding and building the project components as per specifications, focusing on collaboration, problem-solving, and iteration.

Deployment Phase**:** The project is launched in the deployment phase, transitioning it to a real-world setting and marking the start of its operational life. This phase is crucial for delivering our solution.

Our goal throughout the Waterfall model is to maintain high quality and efficiency standards, while delivering a product that exceeds user expectations and effectively solves the identified problem.

## 1.7 Project Scope

[Describe what work is in scope for the graduation project, and specifically what work is out of scope. Boundaries, limitations, assumptions, and/or constraints of the graduation project studies, requirement gathering and the final produced system. Conclude this section with a list of all deliverables to supervisor.]

The project focuses on the development of a comprehensive platform tailored to facilitate the application process for students seeking co-op training programs. This platform will also serve as a registration portal for companies looking to offer co-op opportunities, all under the compass of the IS department. Notably, the platform does not extend to providing graduates with GDP (Graduate Development Program) or other similar services.

Communication channels will be established to facilitate three-way interactions between students, companies, and faculty members exclusively. This approach’s goal is to create a focused and efficient system for the management of co-op positions.

To ensure a fair and structured process, students will be required to apply for co-op positions and await acceptance based on their resumes, the platform will not grant students co-op opportunities freely.

## 1.8 Work Breakdown Structure

[Based on project approach and scope, break down the work that needs to be done to an appropriated level]

We utilized the Work Breakdown Structure (WBS) to segment the project into smaller, manageable phases, facilitating easier execution and ensuring high-quality outcomes.



Figure 2: WBS.

## 1.9 Gantt Chart (Time Frame)

[Based on the WBS, provide the time needed to complete each activity. You need to submit GP1 final deliverables for evaluation and verification by week 12 of the GP1 course and GP2 final deliverables for evaluation and verification by week 12 of the GP2 course. Weeks 13 and 14 are for closing the project i.e. performing the presentation and submitting the final deliverables after modifications needed after presentation and evaluation.]

The Gantt chart plays a critical role in our project, as it is developed based on the Work Breakdown Structure (WBS) outlined in section 1.8. This ensures a structured approach to managing timelines and tasks.

A screenshot of a project

Description automatically generated

Figure 3: Gantt Chart

## 1.10 Team Member's Responsibilities

[Based on the WBS, assign each team member's responsibilities. One responsible member per task. Other members can be involved, consultant, participated in doing the task if not responsible to do the task.]

|  |  |
| --- | --- |
| Task | Student responsible |
| **1.Planning** | |
| 1.1 Define problem statement | Saleh |
| 1.2 Specify project impact | Yazeed |
| 1.3 Define stakeholders | Yazeed |
| 1.4 Describe objectives | Saleh & Yazeed |
| 1.5 Define project approach | Saleh |
| 1.6 Describe project scope | Yazeed |
| 1.7 Creating WBS | Saleh & Yazeed |
| 1.8 Creating Gantt Chart | Saleh & Yazeed |
| 1.9 Assigning team responsibilities | Saleh |
| **2.Analysis** | |
| * 1. **Background analysis** | |
| 2.2.1 Evaluating possible Solutions | Saleh |
| 2.2.2 Overview of existing systems | Yazeed |
| 2.2.3 Existing Business Processes | Yazeed |
| 2.2.3.1 Existing BPMN | Saleh & Yazeed |
| **2.3 Requirements gathering** | |
| 2.3.1 Stakeholders Requirements | |
| 2.3.1.1 brainstorming |  |
| 2.3.1.2 Conduct interviews |  |
| 2.3.1.3 Conduct survey |  |
| 2.3.2 Define Business Process |  |
| 2.3.3 Solution requirements | |
| 2.3.3.1 Functional requirements |  |
| 2.3.3.1 Non-Functional requirements |  |

Table 1 Team member Responsibilities

# Chapter 2: Background Analysis

## 

## 2.1 Possible Solutions

[Evaluation of at least two **possible solutions** for **your proposed solution** to the general problem initially described in 1.2 by conducting a Cost-benefit Analysis of each solution.]

2.1.1 The first possible solution is an "independent application [[1]](#Hayerd)" This is a website that enables companies to offer co-op training opportunities and students to apply for them. This website does not offer a feature to submit or manage weekly reports.

2.1.2 The second possible solution involves a "Manual process for co-op training [[2]](#FieldTraining)" This traditional approach requires students to search for co-op training opportunities manually. Similarly, the submission and management of weekly reports are conducted manually, with reports typically submitted in hard copy.

2.2.3 The third possible solution is an application called "AOUN application." This platform is a website developed under the Information System Department's umbrella. It facilitates students' search and application process for companies offering cooperative (co-op) training. Additionally, once a student is accepted for co-op training, trainers can upload the required weekly reports about the student. This allows the student's university supervisor to review the reports submitted by the trainer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Criteria | Independent application | Manul process for co-op training | Aoun application | |
| Benefit | | | | |
| 1. Automate Report management | × | × | √ | |
| 1. Esay to use | √ | × | √ | |
| 1. Integration with University Systems | × | × | √ | |
| 1. Simplicity of Tools | × | × | × | |
| 1. Scalability | √ | × | √ | |
| 1. Customization | √ | × | √ | |
| 1. Data Accuracy | √ | × | √ | |
| 1. Functional suitability | × | × | √ | |
| 1. Maintainability | √ | × | √ | |
| 1. Feedback process | × | √ | √ | |
| COST | | | | |
| 1. Cost Development | Medium | Low | | Low |

Table 2 Cost-Benefit Analysis

## 2.2 Overview of Existing systems

[Overview of existing systems that includes their advantages, and disadvantages. This helps clarify the problem and helps in proposing a solution. Demonstrate what your solution needs to take into account (advantage from other existing systems) and what your solution needs to improve/solve (the disadvantages of existing systems).]

### 2.2.1 Manual Process of co-op training program

The current system starts off by retrieving papers from the field training website and choosing certified program alternatives from a dropdown menu are the first steps in the co-op application process. Then, using a variety of resources, students look for opportunities that fit their needs. They give the supervisor a co-op training plan if they decide on an uncertified curriculum. The supervisor receives weekly progress reports, and site visits may be undertaken as part of the review process. Three crucial forms are completed to signify the conclusion of the co-op training program.

**Advantages of Current System:**

* Cost-effective
* Perceived simplicity from an outsider's perspective

**Disadvantages:**

* Excessive complexity leading to confusion.
* Potential issues with document stamping
* Management challenges due to numerous participants

### 2.2.2 Independent applications

Using different applications for Example: Hayerd [[1]](#Hayerd), to look for co-op opportunities, independent application enables people to investigate a variety of options outside of those offered by a particular program. Nevertheless, this method has drawbacks, like having to navigate websites that offer options for every major, which can make it more difficult to find the best positions. Upon identification of an opportunity, the user is frequently redirected to the company website to complete additional application procedures.



Figure 4: Hayerd.

**Advantages:**

* Possibility of finding opportunities outside of one's major, enhancing career exploration and range.

**Disadvantages**:

* Weekly reporting features are not integrated, which makes progress tracking difficult.
* Lack of a centralized platform for interactions between students, department, and companies, which hinders the efficiency and streamlining of the application process.

### 2.2.3 Aoun Improvements

Establishing a comprehensive platform that integrates co-op application, submissions, and facilitating company communication, the proposed “AOUN” project seeks to address these drawbacks. This centralized solution will transform the co-op application landscape by streamlining procedures, reducing inconsistencies, and improving user experience.

## 2.3 Existing Business Processes

[Detailed explanation of the existing business processes followed by your current customer using existing system preferably in BPMN using one chosen reviewed existing system you wish to use as a baseline for your proposed solution or to understand Current Business Process (As-Is)]

The current system is started off by retrieving documents from the field training website is the first manual step in the process of establishing a co-op application. The website features a dropdown menu that makes choosing programs easier by providing certified options. After that, students search for appropriate possibilities using a variety of venues, such as social media and independent co-op websites.

If a student opts for a program that is not on the certified list, they must gain a co-op training schedule and submit it to the supervisor. After then, a form called a joining report needs to be filled out, A significant drawback arises if the HR department fails to stamp the form, necessitating the cumbersome step of informing them to send it via mail to the relevant department.

Students communicate with their co-assignee immediately after identifying them; this person is usually a faculty member acting as the supervisor. Weekly progress reports are delivered via Blackboard, hardcopy, or any other method the supervisor deems appropriate. They include tasks, activities, and training materials. In order to evaluate the student's development, supervisors may also ask for site visits, which will facilitate communication with the HR and management departments.

Three crucial forms must be completed at the end of the program: an attendance form, a detailed final report detailing the full experience, and a report intended for direct managers or team leads. The co-op training program is completed upon submission of these forms.

We used BPMN (Business Process Model and Notation) diagrams [[3]](#BPMN) to outline the systems and processes that students engage with. The first BPMN diagram illustrates the procedure students follow to obtain the necessary forms before starting their training and applying to companies. The second BPMN diagram details the co-op training process, including the steps for submitting required reports.

2.3.1 Applying for Co-op Training Process

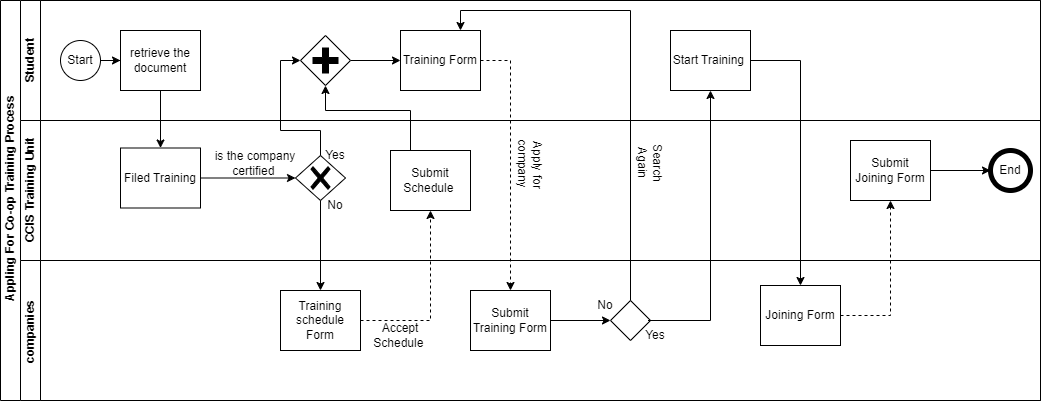


Figure 5: Applying for co-op training.

2.3.2 Co-op Training Process

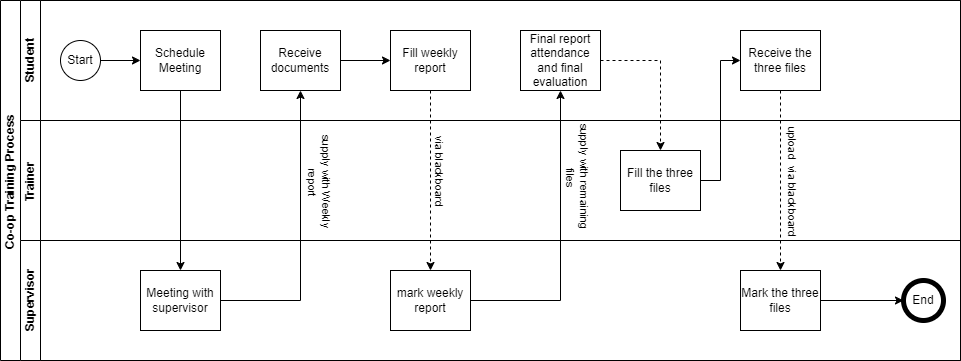


Figure 6:Co-op Training Process.

## 2.4 Literature review [if applicable]

Summarize and review the publications in journals, conferences, etc. related to your project.

## 

# Chapter 3: Requirements Analysis

## 3.1 Requirement Gathering Summary Results

[For each requirement gathering technique used provide technique structure and summary results of the requirements gathered. Actual tools used and detailed results should be **in the appendix**]

## 3.2 Stakeholder Requirements

[Provide in this section with final stakeholder requirements gathered from all techniques your proposed system needs to satisfy. Stakeholders should be listed and their stakeholder requirements should be clarified in this section. It summarizes each stakeholder needs and expectations of the final system. More details for system and user requirements can be provided **in the Appendix**]

Students: questionnaire/survey by the use of google forms with the following results conveying…

Faculty: one on one interviews conducted as a form of a systematic approach to gather requirements from a faculty members perspective

1. CCIS Training unit
2. Jilani
3. TBD

Companies: **Interactive online focus group**, focus group has been used to elicit requirements. participants have shared their impressions, needs, and opinions with the following.

1. barble
2. TBD

## 3.3 Proposed Business Process

[Detailed explanation of the proposed business processes preferably in BPMN that will be followed by using your proposed system. Proposed Business Process (To-Be)]

## 3.4 Functional Requirements

[Use-case diagram for major functionalities of the system and Use-case descriptions for each use-case. Number of use-case: should be about 5 – 9 use-cases for major functionalities of the system only]

## 3.5 Non-functional Requirements

[Discuss the non-technical issues (such as – response time, compatibility, green-IT, sustainability etc.) of your project]

# References

[A list of references should include all the documents that you refer to or quote from in your own writing. Follow the IEEE citation style. For information on IEEE style visit <https://www.ieee.org/documents/ieeecitationref.pdf> ]

[[1] Hayerd](https://hayerd.com/).

[[2] Field Training, IMSIU.](https://fieldtraining.imamu.edu.sa/)

[[3] BPMN, DrawIO.](https://drawio-app.com/blog/using-draw-io-for-bpmn-diagrams/)

# Appendix

[All appendix items shown here must be included]

# A. Miscellaneous

[Includes any further data (for example: interview form, questionnaire form, Interview answers, questionnaire responses, mock interface, remaining figures of data analysis …etc.)]

# B. Presentation Slides

[4 slides per page]

1. Write down your responsibilities in the project [↑](#footnote-ref-1)
2. Must add to 100% [↑](#footnote-ref-2)