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**The Hashemite University, Zarqa, Jordan**

**Faculty of Prince Al-Hussein Bin Abdallah II for Information Technology**

**Computer Science and Applications Department**

**CRAFT HOUSE**

**A project submitted**

**in partial fulfillment of the requirements for the**

**B.Sc. Degree in Computer Science and Applications**

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May 2021

# CERTIFICATE

It is hereby certified that the project titled <***Craft House***>, submitted by undersigned, in partial fulfillment of the award of the degree of “Bachelor’s in computer science and Applications” embodies original work done by them under my supervision.

All the analysis, design and system development have been accomplished by the undersigned. Moreover, this project has not been submitted to any other college or university.



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# ABSTRACT

There is a growing problem of youth's inability to express themselves and blow off some steam doing their hobbies and what talents they possess. Also, projects that are designed with hard work and effort, can be invisible at times due to there not being an adequate platform or good publicity. We looked over those issues and studied them. We talked to teens and people with startups, studied their situation, came up with solutions that were implemented into our app. Now while using the app, everyone can find what they were lacking and looking for in having a business and owning one isn't so hard anymore. This offered teens encouragement to build a start up shop or small business and to practice their talents and hobbies.

# ACKNOWLEDGEMENTS

The success of this project wasn't a one-man job. It took immense hard work, time, effort and will-power. The progress although insidious, was executed with integrity, unity and carried out proper ethics. With utter revere and thrill, it would be our honor to express our gratitude to all parties engaged in the making of this project. Our sincere regards, appreciation and respects to our main captain who was in charge of this project and gave us the command to start, **Dr. Mohammad Bsoul**. A major thank you goes to our teammates who made this happen. We had a vision and we, as teammates, partners and a united force, brought this vision to life. Much appreciation to your hard work and time. You didn't fail to impress, and it was an honor and a pleasure working together. Last but not least, certainly cannot be missed or forgotten. We are particularly grateful for the entire IT department, both instructors and students. As instructors, you pour out your knowledge and wisdom to us and many generations to come. You help make the world a better place every day with your education and enlightenment. Your job as difficult as it is, we hope with our success it would be rewarding. As for my fellow students, we thank you for your team spirit and friendly competition. For the time you've spent on growing, gaining knowledge and evolving, thus keeping our heads held high and proud to be as one. With much said, we are grateful to have had this chance. We thoroughly appreciated the entire process it took to make this project and we are proud of how it came out. We hope you benefit from it and enjoy it as much as we have. Best wishes.

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# ABBREVIATIONS

**UML** The Unified Modeling Language.

**ER**  An Entity–relationship model.

**UI** User interface.

**Ecma** European Computer Manufacturers Association.

**VSCode** Visual Studio Code.

**SDK** A software development kit.

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# Introduction

With all the factory produced goods that surround us, we all long for a little taste of home. Also, with youth looking for platforms to express themselves. Don't you want to help us offer them a safe place where they can express and practice their talents?

There has to be at least one homemade and handmade item in every household, the antique vase your grandma keeps at a high shelf or the key chain your cousin shows off. Homemade goods are unique and not available to the local market. Usually there is a few pieces to go around so if you're not one for twinning, this is the place to go. We offer an array of one of a kind home and handmade products designed to your standards and liking. As well as the ability for you to customize your own pieces.

## Overview

The app *Craft House* is specifically made to offer a service where you can search and choose from a large variety of home and handmade products. Which will make the items and home you own unique and not available to the local market.

The system will offer many services such as the ability to categorize your search to find what you seek specifically. You can see how many people have purchased the item. You can also see reviews and comments on each item you're interested in prior to placing an order. You can speak to each seller and discuss the product and your likes and dislikes about it. We also offer an amazing service where you can directly speak to the artists and technicians to customize your own pieces as you wish. On top of that, we offer you the ability to sell and advertise your own products if you choose to become one of our sellers.

The pieces you will find in our app are unique, one of a kind, of high quality and made with care and love.

## Project Motivation

Recently, social media has increased in following and it seems like everyone is always showing off what they own. To the point that, many people would show off the same items. Same clothing, jewelry, furniture and overall belongings. It looks like everyone is copying each other when that's not the case at all. The case is, we all own similar stuff because brands and the local market is available to everyone. You and someone from across the country and another from across the continent could own the same item. While that is fine, we all secretly wish to own unique items. Also, teens and young adults are looking for a place to show their creativity and talent. Although there are many places on social media to do so, the difference with our app is that they can make an income on top of that.

Hence, our idea was to offer a platform and a place for creativity. Both seller and buyer go on a one-of-a-kind journey of both searching for a special item as buyer and making it as a seller. We support and encourage growth of creativity and individuality.

## Problem Statement

Teenagers and young adults are searching for a platform that offers them a service where they can practice their craft and art talents and allow them to grow as well as making an income doing so. Which is exactly what we offer. Anyone that is in search for unique handmade pieces, this is the place where they can find it. With supporting s projects and the creativity, it takes to start them, this project will offer a large variety of options for buyers to look at and choose.

## Project Aim and Objectives

The project aim is offering unemployed teens and young adults a chance to make an income while doing what they love and what they are talented at. So, this aim could be achieved by providing a platform that suitable for displaying and searching for goods that they made.

## Project Limitations

In this project, there is complete privacy to the user and their data. The buy needs to register and log in, in order to be able to buy or sell a product. This is to protect their privacy and to also save their likes and dislikes to offer a smoother and more specific service. We make all our products ethically and choose to sell them that way. This project allows the customer to search and look for products anonymously. They are only shown when placing an order to allow for communication between buyer and seller if needed. Any data saved will remain private and only accessible to the owner of the account.

## Project Expected Output

An overall conclusive app that makes it easier to customize your home and own as well as sell pieces that are not available to the local market. Also, helping youth to make an income by doing what they love. This app can be used by anyone and is for everyone. Fun, entertaining, creative and special.

## Project Schedule (Gantt Chart)

Table Project Schedule (Gantt Chart)

Calendar

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The table shows a project schedule from the date that we started in Gantt chart with weekly frame.

## Report Organization

The rest of the report is organized as follows. Chapter 2 introduces a discussion on reviewing some of the available literature related to the project. Chapter 3 lists the requirements analysis that involves requirements elicitation, functional and non-functional user requerements, stakeholders, and the use case diagram. Chapter 4 presents the system architecture, design, GUI, and UML diagrams. Chapter 5 will discuss the implementation plan and the programming language that we used to develop this project and the other components are described in detail. Chapter 6 talks about testing plan and software testing. Chapter 7 presents future work and concludes the report.

# Literature Review

In this chapter, we will talk about applications that are related to *Craft House*, then we will discuss the differences between the existing applications and our application.

## Introduction

Our app contains many features designed to make the customer's shopping experience one of a kind, easier, entertaining and efficient. They can buy and sell unique homemade products tailored to their standards and liking. Our users are required to log in for safety purposes and for the ability to search and see the products smoothly. We have a distinctive feature that allows the customer to order and help with designing their own custom products, making our app flexible and easy to use.

## Existing Systems

### Homemade: Home Cooks Near Me

**Graphical user interface, text, application, chat or text message

Description automatically generatedGraphical user interface, text, application

Description automatically generated**Homemade app is designed specially to order takeout homemade foods by home chefs in United States. The user can order food from their own specific recipes, and they cannot receive custom order foods.



Figure : Homemade App



### Etsy

Etsy is one of the best platforms that selling homemade products. It is easy to use and the product that they are selling is so unique and beautiful. However, the fee of selling product is very high and also you should pay monthly subscriptions to become seller.

Graphical user interface

Description automatically generated with medium confidence Graphical user interface

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Figure : Etsy.com

The figure 2 shows screenshots of homepage and product details page in IOS Etsy app with unique dark theme.

### Open Sooq

Open Sooq is one of the largest platforms in the Middle East. They connect buyer and seller to be able to sell, buy or get a service.

Graphical user interface, application

Description automatically generated Graphical user interface

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Figure : Open Sooq

OpenSooq is grate platform for buying and selling used items, but the platform is a lot of Ads that connected with Google Adsense. And also, OpenSooq is only connecting people with each other, they do not provide ordering service.

## Overall Problems of Existing Systems

The following are the problems of existing systems:

* There is no system that provide selling homemade product in Jordan.
* Some of these systems do not have the chat services between customers.
* There is a lot of apps that provide selling homemade products, but the most of these systems selling in specific categories like foods and gifts, not everything.
* Some systems are customer-specific, and the process of registering stores is complex.
* Some of these systems take from both customers and sellers high fees with monthly subscription.
* Most of these systems cannot request fully custom product.
* Some system has a lot of advertisement that not related to their system.

## Overall Solution Approach

The following are the solutions that our platform provides:

* The system is the first homemade product platform that available in Jordan.
* There is not going to be monthly subscriptions or high fees.
* The system provides the chat service between customers.
* The system support youth and families’ sellers.
* Registering to the system and using the app is easy and not complicated.
* *Craft House* is supporting all categories of homemade products and it is not specified in some categories.
* The buyer can request fully custom order from the sellers.
* Free from third party advertisement.

Table : Comparing Systems

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Craft House** | **Homemade App** | **Etsy** | **Open Souq** |
| **Availability in Jordan** | **Badge Tick1 outline** | Badge Cross outline | Badge Cross outline | **Badge Tick1 outline** |
| **Low fees and subscription** | **Badge Tick1 outline** | **Badge Tick1 outline** | Badge Cross outline | **Badge Tick1 outline** |
| **Fully Custom Product** | **Badge Tick1 outline** | Badge Cross outline | Badge Cross outline | Badge Cross outline |
| **Support All Categories** | **Badge Tick1 outline** | Badge Cross outline | Badge Cross outline | **Badge Tick1 outline** |
| **Chat service between buyers** | **Badge Tick1 outline** | Badge Cross outline | Badge Cross outline | **Badge Tick1 outline** |
| **Free from 3rd party Ad** | **Badge Tick1 outline** | **Badge Tick1 outline** | **Badge Tick1 outline** | Badge Cross outline |
| **Support youth and families** | **Badge Tick1 outline** | **Badge Tick1 outline** | Badge Cross outline | Badge Cross outline |

The table 2 is comparing each facture in our platform with other existing platforms.

# Requirement Analysis

This chapter talks about requirement analysis, the definition of it, who is going to use these systems, who are stockholders and what is nonfunctional of this system. The requirements analysis, also called requirements engineering, is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant, and detailed. In software engineering, such requirements are often called functional specifications. The requirements analysis is an important aspect of project management.

## Stakeholders

* **Primary Stakeholders**

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Figure : Stakeholders

## Use Case Diagram

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Figure : Use Case Diagram

## Functional User Requirements

*Craft House* is an online marketplace that gathers and organizes businesses between both seller and buyer in one place. This section sets out general functional requirements that apply to the platform as a whole and which are not derived from any specific stakeholder as following:

1. Sign in and register functioning page where users can access their accounts if they already own it and, register and create new one for unregister users. And also, anyone can enter the platform as a guest.
2. Feeds / Home page that shows sellers, products and items that you are related to, or trending at that time.
3. Favorite page that shows items and sellers that user added it.
4. Profile page that shows their personal information, and their posts if they have that.
5. Order page that shows status of their orders and requests from sellers.
6. The users can search about specific items or sellers by using search or filtering categories.
7. The seller users can create post and upload pictures.
8. The buyer users can add any posts or sellers as their favorite.
9. Notification page to preview any of it.
10. The buyers can rate the sellers after receiving their product.
11. The responding time to the messages of the seller should be shown in their profile page.
12. The personal or business information should be editable.
13. The users can access to any sellers’ profiles.
14. The buyer can ask the seller about their product in their post.
15. Every post should have review section that shows the review from the buyers about the product that received.
16. Every post should have a request section that through it the buyer can request custom order from the seller and ask them if they could do it.

## Non-Functional User Requirements

*Craft House* is an online marketplace that gathers and organizes businesses between both seller and buyer in one place. This section sets out general non-functional requirements that apply to the platform as a whole and which are not derived from any specific stakeholder as following:

1. Usability Requirements

* The GUI of the platform should be an interactive and easy to use.

1. Availability Requirements

* The platform should be continuously available 24/7.
* Periods of scheduled maintenance for platform should normally be arranged.

1. Privacy Requirements

* Privacy of the users is secured and made priority.
* Both personal and business information are not to be shared or distributed to any personal or governmental entity.

1. Compatibility Requirements

* The platform should function and be compatible with two operating systems, both being IOS and Android.

1. Accessibility Requirements

* The platform should be accessible by the users from any location using secure internet.

1. System Requirements

* The platform should be implemented as a client-server system with personal and business information held on by a server maintained by the system.

1. Performance Requirements

* The platform should write in flutter framework using dart programming language, and the code should be written in the way that make the execution time of the app fast.

# Architecture and Design

This chapter explain all components of our application and how they are related to each other through some of diagrams and full description of the interfaces of the application.

## Software (System) Architecture

### Logical view

Diagram

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Figure : Logical View Flowchart

The figure shows how our platform works from starting app and how logically takes an action in each step.

### Scenario

“The platform is simple, it has two types of users, each of them has different characteristics, because they have a different goal, the seller who wants to sell his product, and buyer who is looking for unique homemade products to get it.

Seller has their own products to sell. They can post about their products and describe about it by adding pictures and write specific description about it, and of course they can set the pricing. Also, they could offer to make their own unique custom product if the buyer asked about it.

Buyer can search and looks for all products in this platform. They have two ways to buy products, the first one is ordering normally by the product post that already sets from the seller, and second one is request from specific seller to do for them special unique custom product that they are requested to do it.”

## Software design

### UML Sequence Diagram

**Diagram

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Figure : Login Sequence Diagram

when you open the platform application, the user must sign in. If a new user has to register in the app, the information requested when registering varies depending on the type of user.

Diagram, schematic

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Figure : Sequence Diagram when Buyer Order Product

The main function of the platform is to search for handmade products and order them if its found.

### Class Diagram

The class diagram is in software engineering is a type of static structure diagram that describes the structure of the application by showing the system class, its attributes, operation, or methods. and the relationship among applications. In this diagram, we try to cover all description of our system.

**Diagram

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Figure : Class Diagram

### ER Diagram

The ER or (Entity Relational Model) is a high-level conceptual data model diagram. The Entity-Relation model is based on the notion of real-world entities and the relationship between them. ER modeling helps you to analyze data requirements systematically to produce a well-designed database.

Diagram

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Figure : Entity Relation Diagram

## User Interface Design (prototype)

Graphical user interface, application

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Figure : Craft House Sign Up Page

This figure for users that have an account in the platform. Users should enter their valid email and password to use the platform. Also, if the user forgot the password, they could retrieve it by clicking on the forget password hyperlink. And if the user was not register in the platform, they could move to register page by clicking at the sign-up hyperlink.

Graphical user interface, application

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Figure : Sign Up Page

For users that is not registered in the platform, they should sign up to it by entering their personal information for security reasons.

Timeline

Description automatically generatedGraphical user interface, application, website

Description automatically generated

Figure : Products in Each Category

Figure : Home Page

Our platform is organized by each category with specific products, so the buyer can use the app in more efficient way and enjoy the experience.

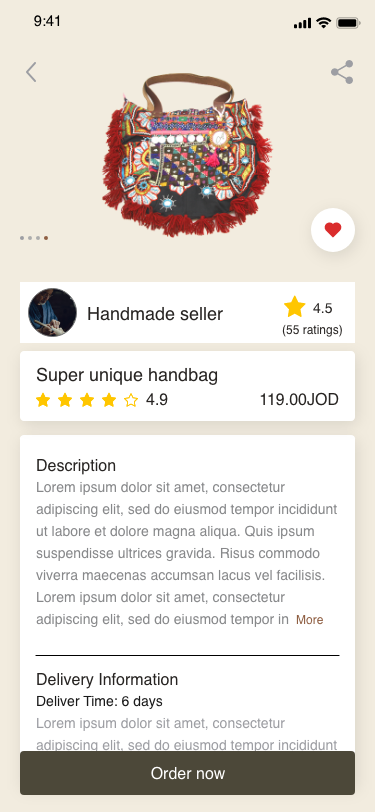


Figure : Product Details

In the product details page, we show the product information in detail, from the seller and his rating, product rating itself, product description, and deliver information. As well as if the seller offers custom order in the product or not.

# Implementation Plan

## Description of Implementation

The software implementation stage involves the transformation of the software into one or more fabricated, integrated, and tested software configuration items that are ready for software acceptance testing. It refers to the process of adopting and integrating a software application into a business workflow. Implementation of new tools and software into an enterprise can be complex, depending on the size of the organization and the software. Before implementation, the software should be selected by assessing needs, budget, potential benefits, obstacles, and so on. Once the solution is chosen, implementation can begin. To avoid mistakes, the values will be done by several steps, including:

* Beta Software - Before installing at a large scale, test the software in advance with an in-house test kit for feedback.
* Preparation and Training - Develop a qualification program and software training program to ensure all users to take advantage of all functions and features.
* Monitoring, Maintenance, and Follow-up - Monitor user feedback throughout the implementation process.

## Programming language and technology

In this project, we designed and created a mobile application that runs On Android and IOS devices.

When it comes time to develop Android and IOS devices from a single codebase, the first and best option is Flutter.

Flutter is Google’s open-source mobile app UI framework to make top-quality native-like apps for Android, iOS, and Google Fuchsia. The framework was introduced at Mobile World Congress 2018 to lower down the hurdle to enter the market as well as accelerate the process of designing mobile UI for the native app developers, with significant features like Hot Reloading, Flexibility in Design, and Native Performance possibility by Dart language. [4]

Dart is a general-purpose programming language originally developed by Google and later approved as a standard by ECMA. It is used to build web, server, and mobile applications. Dart is an object-oriented, class defined language using a C-style syntax that trans compiles optionally into JavaScript. Dart is an incredibly easy language to learn. Programmers who already know languages like Java, JavaScript, Kotlin, C#, or Swift can start programming in Dart almost immediately. Dart, the language used to develop Flutter apps, is simple to learn. [5]

The number one way to develop Flutter applications is to go ahead and download Android Studio, IntelliJ IDEA or VSCode, and Dart software development kit (Dart SDK) and Flutter tools and this will give you everything you need in one place to get up and running.

The official tutorials and documentation from Google will reference this method and you will find the largest number of libraries (free code to enhance your apps) and tutorials that focus on this method. [6]

# Testing Plan

The testing plan is a detailed document that describes the test strategy, objectives, schedule, estimation, deliverables, and resources required to perform testing for a software product. Test Plan helps us determine the effort needed to validate the quality of the application under test. The test plan serves as a blueprint to conduct software testing activities as a defined process, which is minutely monitored and controlled by the test manager.

## Software Testing

Software Testing Component testing, also known as behavioral testing, is a software testing method in which the internal structure/design/implementation of the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional. So, because the software program in the eyes of the tester, is like a black box inside which one cannot see. This method attempts to find errors in the following categories:

* Incorrect or missing function.
* Interface errors.
* Errors in data structures or external database access.
* Behavior or performance errors.
* Initialization and termination errors.

# Conclusion and Results

## Summary of accomplished project

In conclusion, *Craft House* aims to encourage youth to display their talents and creativity as well as to support small projects needing a platform to show their handmade products. Thus, they could get chance to make an income while doing what they love and what they're talented at.

## Future Work

We aim to improve our platform in the future to become better. Therefore, here are the plugins that will be introduced in this app:

* Providing more payment methods.
* AI smart search engine that provides the user with the result that related to him.
* Supporting more languages, such as Arabic.
* Access to application as a visitor.
* Our platform will be applied to the web browser.

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