DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
THE UNIVERSITY OF TEXAS AT ARLINGTON

PROJECT CHARTER
CSE 4316: SENIOR DESIGN I
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CLOUDERS
EMARKET - A FULLY CLOUD BASED WEB APPLICATION

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REVISION HISTORY

Revision	Date	Author(s)	Description
0.1	07.05.2020	RK	document creation
0.2	07.08.2020	MK, RK, NP, SB, NT	complete draft
0.3	07.09.2020	MK	document revision

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LIST OF FIGURES

1 VISION

EMarket is the fully cloud web application designed to sell buy and sell the products without any fee and especially built to help the local business to keep running which is been affected due to COVID-19 pandemic. Most of the people need to pay certain amount of fee to sell their products but with the development, it will be completely free such that normal people, local business can boost their economy. Buyers can easily search the needed product and place an order with a payment being on hold and only charged until the product is received. So, we will be building this website with minimum development cost and with higher objective of better services to the users.

2 MISSION

The main motive of project is to help the local business and sellers to sell their products for free of cost among many buyers nationwide. In order to succeed on it, we are building the cloud based web application using Amazon Web Services to provide the effective and better services to the user. In this website, user will post their selling products and list them. Similarly, there will be the way that user can promote their products which will be the source of income to run our website. We are using the Java programming language and spring framework and the tools that we are going to use in this website are:
1) Amazon Web services
2) IntelliJ IDEA Ultimate
3) Tomcat

3 SUCCESS CRITERIA

EMarket is the classified Ads website built specially for the local business and person to boost their financial status which is been affected due to the COVID-19 pandemic. As in our website, the sellers can sell than their products without any fee and this will help alot to the small business to keep on running.

Upon completion of the prototype system, we expect the following success indicators to be observed:
1) Basic layout of the homepage is setup and the registration form for the sellers is connected to the database.
2) User authentication and authorization system is designed.
3) Sellers can post one picture of the products to sell.

Within 6 months after the prototype delivery date, we expect the following success indicators to be observed:
1) Payment processing system is enable using Paypal.
2) Buyers can sell the list of the products they have purchased.
3) Sellers can add the tracking number of the products that they shipped to the buyers and buyers can get notification either through SMS or email.

Within 12 months after the prototype delivery date or the completion, we expect the following success indicators to be observed:
1) The seller will be able to post their items on the website and the buyer will be able to purchase the item from the website.
2) The main homepage of the website will show the list of items categorized into different category such as electronics, entertainment, clothes.
3) Local business sell their products in the market with free of cost.
4) The web application will be able to easily make monetary transaction between the buyer and seller.

4 BACKGROUND

The article published in Business Insider states that More than 99 percent of all businesses are small businesses, and they employ about half the US workforce. Most small businesses lack the cash reserves to weather a month-long interruption, and forecasts indicate more than 2 million workers could lose their jobs in just one week as a result of the corona virus pandemic. There is also the possibility of a "startup depression," wherein new companies don't enter the job market because of the pandemic [3]. This was the serious problem and through our project we want to address it helping the small business to reach the massive numbers of buyers to sell their products free of cost. Similarly, we are also addressing the individual person who want to sell items that are no use of for them anymore and are in good condition without charging any fee. Similarly, profile of the sellers can be easily seen in the web page such that the buyers can easily contact to them if they have any questions or queries. We believe that with the completion of the project and joining the eMarket team, local business can keep running the business and powering the economy of the country too which is mostly needed in current situation.

5 RELATED WORK

Ecommerce has been next big thing in this modern era. The evolution of technology and widespread access of internet has been led to the creation of millions of online stores.Online selling has taken a huge step forward in the global market.Todayâs ecommerce business owner has more option than ever when it comes to where and how to sell goods online. According to online shopping forum, 69% of Americans have shopped online and 25% of Americans shop online at least once per month [1]. The global online shopping market is predicted to hit 4 trillion in 2020 and in US alone, we are expecting to have 300 million online shoppers by the year 2023.That's 91% of the entire country's population [4].

There are various online ecommerce platform for the online buying and selling of the products. Some of the examples are amazon and eBay. Amazon draws nearly 184 million visitor a month while eBay is home to about 164 million active buyers [2].They are one of the popular brands when it comes to online shopping.Branding is one of most powerful currency that a company can have [6].Our view and goal of our project are based on reaching the same height of success and popularity as an Classified Ads based website. Even though these existing solutions has been quite popular, these websites mainly focuses on sales and not the seller. Thus, there is limited control of the branding. One of the main aim of the project to help seller grow as an business and expand the presence of the seller in the platform.Social selling will help us sell more [5] Thus, we aim to create a product with more added features and functionality to it compared to whatâs already in the market which makes us different than the existing online marketplaces.

6 SYSTEM OVERVIEW

It is basically a fully cloud based web application with frontend and backend. The backend server will communicate with the database and store product and user information while the front-end will help the user to interface the website and also communicate with the backend server to retrieve the data from the database. The application is designed to meet the requirement of buyer and seller especially in this pandemic. We design the product with the aim of buying and selling the product without any fee additional amount of charges. We also focus on the helping and assisting the local businesses. We achieve to obtain our goals with small description of our planned overview of the system.

1) We are going to use the Amazon Web Services(AWS) for our product. We will create and deploy the java web application on AWS using Intellij for the project. It will help us to secure cloud service

platform, computer power, database storage, content delivery and other functionality to help business scale and grow.

2) We will create a user friendly interface so that it would easy and efficient enough for both buyers and sellers to use the website.

3) One of the key elements in our website will be the description of the products. One of the key elements that help people make decision of the products are its description. Same goes for the image of the products. Seller needs to make description attractive and informative. Thus, we will try to implement an explicit ways of adding description with useful auto complete forms and error correction , image editing and other time saving feature so there is proper and clear description of the product.

4) The product also includes the safe and easy checkout options. According to the study done about 69 % of the user abandons their shopping cart without completing the purchase which in turn accounts to loss of up to $18 billion annually. So , we will implement prominent Call-To-Action and minimum steps to complete the checkout. Thus, we are going for PayPal in our market place. We will also try to include some other options as some of the region may not accept limited payment options and prefer some local option as well.

5) There will be user friendly search engines that will help the customers or the buyers to search the items that they want and in addition to that there will be proper communication channel between the seller and buyer so that there wont be any gap or confusion while dealing with the product.
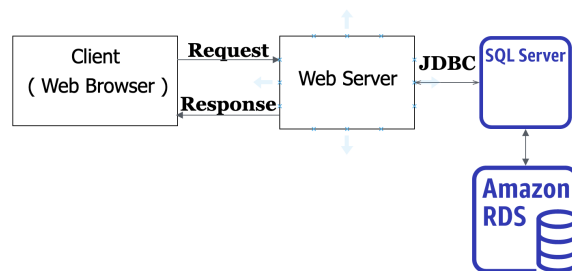
The figure below show the system overview of our system:

Figure 1: System overview of EMarket

7   ROLES & RESPONSIBILITIES

EMarket consist of four team members and a Project Manager.The stakeholders of the project are current team members, professor of the class and future customers of our project(buyers and sellers).Some of the roles and responsibilities of the team members are as follows-

- **'Dr.Conly'** as **Project Manager and Sponsor** Role-As a Project Manager and Sponsor of the Project, his main responsibility is to check and examine teams status for the smooth and successful completion of the project. He is also responsible for communicating with the teams for any progress or any confusion caused in the work towards completion. He is responsible to provide suitable and needed resources needed for the team to complete the project. Lastly, grade

each project and provide incentive feedback to the teams about the project.

- **'Mohan Karki'** as **Team Member**
  Role-As a team member, he is responsible for the all-around proper functioning of the project and accountable for backhand part of the project.

- **'Roshan Kandel'** as **Team member**
  Role-He is responsible for the design of the project and also in control of backhand part of the project.

- **'Noel Tamang'** as **Team member**
  Role-Carry out the task of back end developer and handle data management of the website.

- **'Sunny Rajbhandari'** as **Team Member**
  Role- Responsible to check for the documentation of the projects and also carry out front end task.

- **'Nabin Panthi'** as **Team Member**
  Role-Carry out the testing of the project and in charge for the front end part of the project.

8   COST PROPOSAL

The project is mostly software based and we are still in the planning mode of the project so there is no immediate attention required for the budget. However, we have to allocate some of the amount to be invested in the Source code of the project. We may also need to invest some amount of money for licensing,upgrades. So,the budget will mainly be spent on Source Codes, upgrades and deploying the project.

8.1   PRELIMINARY BUDGET

Item	Price
Amazon Web Services	$300
Domain Name	$50

Table 1: Overview of the cost proposal

8.2   CURRENT & PENDING SUPPORT

The primary source of funding for this project is the default $800 budget provided by the CSE department for senior design teams. As this project is not sponsored, there is no external funding for the project.

9   FACILITIES & EQUIPMENT

As we are working in the teams and there the project is mostly software based, we can use space or room that can fit 4 to 5 people at a time for group meeting. Similarly, we will be using the Github to share our source code with professor and team members. As to communicate among the team members, we are using the Discord and Microsoft Teams.

10 ASSUMPTIONS

The following list contains critical assumptions related to the implementation and testing of the project.

- Basic user interface and github for the project will be set up by 1st sprint.

- Amazon web services credentials will be provided by the 2nd sprint cycle.

- Complete Database Model for the application will be completed by the 4th sprint cycle.

- Seller can register and start posting their products/Ad by 5th sprint cycle.

- Notifications system and payment system will be working from 5th sprint cycle.

11 CONSTRAINTS

The following list contains key constraints related to the implementation and testing of the project.

- Database prototype must be ready by starting of the 2nd sprint cycle.

- Application should be executed in real-time.

- AWS account credentials should be misused in any way otherwise it results in blocking of the account and not accessible to database.

- Total development costs must not exceed $800

- All data obtained from customer site must be reviewed and approved for release.

12 RISKS

The following high-level risk census contains identified project risks with the highest exposure. Mitigation strategies will be discussed in future planning sessions.

Risk description	Probability	Loss (days)	Exposure (days)
Requirement changes over different sprint cycle delay the project work.	0.50	20	10
Lack of proper and effective team communication due to COVID-19 pandemic.	0.45	14	6.3
AWS Account maybe suspended if accessed from multiple locations many times due to security issues.	0.25	7	1.75
Training needed among all the team members to get familiar with all the equipment's and tools used int the project.	0.10	10	1.0
Certification delays at compliance testing facility.	0.15	10	1.5

Table 2: Overview of highest exposure project risks

13 DOCUMENTATION & REPORTING

13.1 MAJOR DOCUMENTATION DELIVERABLES

13.1.1 PROJECT CHARTER

The Project Charter will be maintained by all team members and updated after discussing with the Dr. Chris Conly whenever any large changes arise regarding the project risks, equipment, and success criteria as each week every team members are assigned to certain task related to the project. The initial version will be delivered by July 12, 2020 and the final version be delivered by the Aug 15, 2020.

13.1.2 SYSTEM REQUIREMENTS SPECIFICATION

The initial version will be delivered by July 12, 2020 and the final version be delivered by the Aug 15, 2020. The System Requirements specification will be maintained by all team members and updated after discussing with the Dr. Chris Conly whenever any large changes arise regarding the project risks, equipment, and success criteria as each week every team members are assigned to certain task related to the project.

13.1.3 ARCHITECTURAL DESIGN SPECIFICATION

The initial version will be delivered by starting phase of the first sprint and the final version be delivered by the last sprint cycle. The Architectural Design specification will be maintained by all team members and updated after discussing with the Dr. Chris Conly whenever any large changes arise regarding the project risks, equipment, and success criteria as each week every team members are assigned to certain task related to the project.

13.1.4 DETAILED DESIGN SPECIFICATION

The initial version will be delivered by starting phase of the first sprint and the final version be delivered by the last sprint cycle. The Detailed Design Specification will be maintained by all team members and updated after discussing with the Dr. Chris Conly whenever any large changes arise regarding the project risks, equipment, and success criteria as each week every team members are assigned to certain task related to the project.

13.2 RECURRING SPRINT ITEMS

13.2.1 PRODUCT BACKLOG

We will add items to the product backlog based on their level of importance in the project. We will have the every week group meeting where we will decide which items are the critical part of the project and need to be addressed first and use the tools like MS team or Jira to maintain product backlog.

13.2.2 SPRINT PLANNING

Each sprint is planned through the meeting of the team members discussing about the requirements that need to addressed firstly and looking at the success criteria. Throughout the project, there will be 8 sprints that last about 3 weeks each.

13.2.3 SPRINT GOAL

Currently, there are no any customer involved in the project, each sprint goal is determined through the discussion of the team members.

13.2.4 SPRINT BACKLOG

Similar, to the product backlog, our team members through group discussion will decide which product backlog items make their way into the sprint backlog based on the importance and complexity of the task to complete. We will be using MS Team or Jira as a tools to maintain the spring backlog.

13.2.5 TASK BREAKDOWN

Each week we will have the group meeting through MS Team or Discord and each task is discussed before assigning to the individual such that it will create fair share of work among the team members. If we need to adjust some work, then we will call the meeting and work on it.

13.2.6 SPRINT BURN DOWN CHARTS

Our team leader is responsible for generating the burn down charts for each sprint. Below is the chart of the sprint burn down:
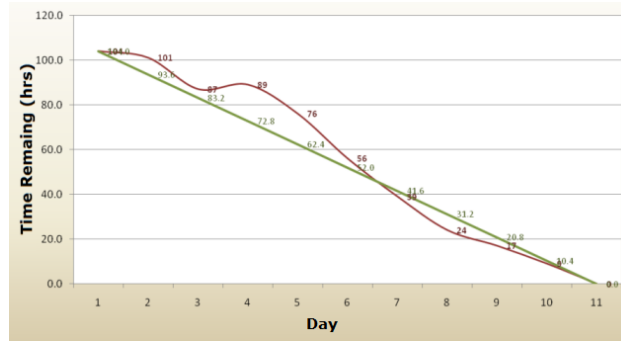
Figure 2: Example sprint burn down chart

13.2.7 Sprint Retrospective

At the end of the each sprint, we will know what things has not been done which was supposed to be done. In order to address this, we will have the group meeting and discussed about it assigning the task among group members setting the deadline with in a couple of days.

13.2.8 Individual Status Reports

Each team members is required to submit their reports in each team members meeting that is being held every weeks. In the report, they must need to addressed what is the status of the task they we were assigned during on going sprint cycle and what kind of help they might need to complete, what kind of difficulty they are facing and quick demo of the current work.

13.2.9 Engineering Notebooks

The engineering notebook will be updated by each team member at each group meeting and whenever ideas related to the project arise. There is no minimum requirements, but team members should try to fill it as much as possible when working on the project. Team leader will sign as a witness for each ENB page.

13.3 Closeout Materials

13.3.1 System Prototype

The final system prototype will be a web application that fulfills the preliminary success criteria. Prototype acceptance testing will be conducted before moving on to the next stage. This will be demonstrated at the demos of Senior Design at the end of Fall 2020.

13.3.2 Project Poster

The poster will include the vision, mission, and background summaries.The dimensions will be 36" x 48" a on standard tri-fold presentation board. This will be delivered a week before Senior Design Demos.

13.3.3 Web Page

The project web page will include project vision, mission and demo video link of the final project. It will be available to the public at the end of the Senior Design project II.

13.3.4 Demo Video

The Demo video will be mostly focusing how the user can register, add items for sale and get the notification of the order placed from buyers, list of items available categorized in different category.

13.3.5 SOURCE CODE

As the eMarket is the cloud based web application, no binaries are involved and the project source code will be available in Github. IT will be maitained using Git as the version control system. The project will be open sourced to the general public with the MIT license and the license terms will be listed in License.txt file.

13.3.6 SOURCE CODE DOCUMENTATION

All code which is include files, class will be well documented and present of our documentation in HTML format.

13.3.7 INSTALLATION SCRIPTS

This project will be the cloud based web application deployed using AWS. Deployment instructions for each part of our application will be provided in a README file.

13.3.8 USER MANUAL

There will be not be any printed handout rather we will have demo video how can the new users can get started.

References

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[6] Wallace Tracey. Ecommerce Branding: 11 Examples and 27 Expert Tips to Help Build Your Brand Online, 2020.