# Introduction

## Topic Introduction

Nepal is a developing country where technology is evolving in a fast pace. There are a lot of new technologies introduced and implemented in the recent days in Nepal among which e-commerce is one of them. The number of ecommerce sites in Nepal is increasing in fast rate as people tend to run business online due to the easiness of money transaction and new facilities. Finding goods in the online store is easier than going through different stores in the market which is a lot more time consuming. In Nepal the introduction of ecommerce is still in its starting which is growing at a fast pace. Only a handful of sites in Nepal provide eCommerce service in Nepal where [www.daraz.com](http://www.daraz.com) and [www.sastodeal.com](http://www.sastodeal.com) are rising online shopping portals which attract people with special discount offers. ( export.gov, 2019)

Website application has been one of the most talked topics in the internet world these days. The number of these application have increased in a tremendous way opening the way to research more and create more opportunities in this particular field. A Website Application is something that uses a web browser as its client with the help of specific functions in a computer program. The server is that which stores the information in it and the client is the application used to enter information. Some of the well-known web apps in Nepal are hamropatro.com which is an online calendar while eSewa.com.np is a site which is like a digital wallet allowing users to pay their bills as well as send and receive money through their site.

Out of all the website applications in the internet world ecommerce site is one of them and ecommerce site created by using web scraping is another interesting website application. An ecommerce site helps people find the product that they want through an online web app. It also allows the use to buy products and get delivered where ever they are while web scraping ecommerce sites collects the products details from different sites and allows the user to compare them in a single web page.

### 1.1.1 Current Scenario (World and Nepal)

Looking that the current scenario there are a lot of ecommerce sites in the world which give service to the people online, some of them being amazon.com, bestbuy.com etc. There are also web applications which provide scraped data in a single page for the people to compare the pages such as, shop ineer.com, pricegrabber.com etc.

In context of Nepal there are no such scraping web apps that provide price comparison between different products online, but there is a website that scrapes all the jobs and shows them in a single page i.e. <https://scrape-job-portal.herokuapp.com> .

## Problem Statement

Since there are a lot of ecommerce businesses running these days people have a lot of sites to choose from. People tend to go through each and every website of ecommerce in order to find the stuff they are looking for. Some of the problems visiting each and every ecommerce site are as follows:

* People tend to spend more time in finding the product they like in every ecommerce site
* People cannot view same kind of products in a single page and compare them
* The discounted price that ecommerce sites are posting for the products that people like cannot be viewed every time.
* People tend to get frustrated by looking at different kind of products in different sites

In Nepal there aren’t any web app for the purpose of displaying products from different web apps to the same one. There are a lot of things that needs to be considered while creating the app as it assembles the products from different other applications.

## Project as a solution

A system for bulk downloading of web pages is known as web crawler. It is also known as a robot or a spider. They are one of the main components of web pages which help the user to assemble a collection of web pages. (Christopher Olston, 2010) With the use of crawling and scraping of data from different ecommerce sites present here in Nepal, all the normal and discounted prices can be listed according to the specified products which makes it easier for the customers to find products online in a single page.

Through my project I want to build a web application that can be helpful for the customers in order to find different products that have been published in different ecommerce websites in the same web page and with the feature of comparing them. This web app will help the users to find and view the price of discounted products from different ecommerce sites in Nepal. They can seal the deal for the best deal that they like in an easy manner. This app can help the people to save their time and effort of scrolling through different websites for different kind of products. This app can also be a platform for the ecommerce sites to create a good deal for their customers as everything can be compared in a single website. The future implementation of project is also to allow the user to save products and alert them when the price is decreased with price subscription for the feature.

## Aims and Objectives

## Aims

The main aim of this project is to build a website application to help the online customers of ecommerce site in Nepal to look for the best deals from multiple ecommerce sites in the same web app. The aim of this project is also to crawl through ecommerce websites and scrape data related to normal prices as well as discount offers and keep them updated. The aim of this project is also to showcase different discounted prices of products from ecommerce sites in Nepal through which people can easily compare and save time. The data of ecommerce sites giving discounts can also be compared and be analysed for the future use.

## Objectives

* To provide users with a platform where the normal and offered prices from different sites are displayed
* To provide users the facility to compare the prices of similar kind of products in sale
* To perform crawling and scraping of the data of ecommerce products through their websites
* To provide users to save products they want to buy to get alert messages when price is decreased
* To provide ecommerce sites an opportunity to create more attractive sales in their websites
* To make a user-friendly UI that is responsive

## 1.5 Structure of the Project

**Background**

This part of the report contains discussion of architecture of the project, similar projects and its analysis.

**Development**

This part of the report discusses the methodology of the methodologies, platforms and various tools and technologies involved in the project.

**Progress**

This part of the report consists of the progress that has been made so far in the project and further tasks to be carried out in the future.

# Background

## Project Elaboration

This project involves mainly the users i.e. customers who want to view the products and compare them. The features in the system are used by the users in order to get the desired result.

The major function of the project includes:

1. Web Scraping

The process of scraping or retrieving data from data from website is known as web scraping. Intelligent automation is used by the concept for retrieving hundreds of data points from the internet’s endless data. This feature is used to scrape data from different websites related to ecommerce and store in a database. The user will be able to view all the products that has been scraped in a single web app.

1. Using Nepali e-commerce site

The web app will use Nepali ecommerce sites to scrape data which will attract Nepali customers. This approach will make it easier for the Nepali people to search for similar kind of products from different ecommerce websites.

1. Comparing similar kind of products

This project allows the users to compare similar kind of products that the user searches for. The comparison is done on the basis of similar and different kind of features of the products.

1. Saving products and notifying the users about the change in price

This project allows the users to save the products that they like or are interested in buying in the future. Along with the feature of saving the system also notifies the user about the change in price of the product.

## Terms/Definition

**Scraping**- the process of retrieving data from different websites in the internet is known as scraping

## Similar projects

1. Shopineer

Shopineer is a website application which helps the user to find the right laptop for them. This site categorises the technological stuffs into different sections, which includes laptops, desktops, monitors, smartphone etc. This site uses scraping techniques to collect data from different websites.

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1. Shopzilla

One of the largest and famous online shopping networks is Shopzilla which is one of the sites which provides comparison of products. Users can get the benefit of viewing multiple products from thousands of retailers and find the best value of what they want. The item the user selects is forwarded to another page where a comparison between similar kinds of products are shown. (SINGLEFEED, 2019)

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1. Shopmaina

Shopmania is one of the price comparison sites for the customer who want to view and compare the product they want to buy. Shopmania is also a pay per click featured website which directs the users to the actual page of the product listed in the site. The website gets paid for every time a user clicks their product. (Hayes, 2019)

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## Comparing similar projects

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| --- | --- | --- | --- | --- |
|  | Shopineer | Shopzilla | ShopMania | My Project |
| URL | https://shopineer.com | http://www.shopzilla.com | https://www.shopmania.com |  |
| Server Information | Nginx | Nginx, Amazon Route 53, Apache, Apache Tomcat Coyote | RackSpace DNS Cloud, Nginx | Apache |
| SSL Certificate | LetsEncrypt, SSL by Default | GoDaddy SSL | LetsEncrypt, SSL by Default |  |
| Server-side Scripting Language |  |  |  | PHP |
| Framework | DAV |  |  |  |
| Payment gateways | N/A | N/A | N/A | N/A |
| Loading time |  |  |  |  |
| Signup | N/A | N/A | Free | Free |
| Service charge | None | None | None | None |
| Credit/Debit card | None | None | None | None |
| Mobile optimized site | Yes | Yes | Yes | Yes |
| Price Comparison | Yes | Yes | Yes | Yes |

## Conclusion

Above listed web apps summarize the overall features and tools used to develop these sites. As shown in the table all the three sites are famous and well used applications by many users. All these web applications are used to display and compare the similar products. Shopineer and Shopzillla do not have a login panel for the users but ShopMania has a free Signup. ShopMania also follows pay per click method to earn money as they have users clicking on the items that they have in their display which makes the page more creative and thoughtful of what they have done. These three sites have their own method of comparing products but, since all of them are price comparing apps, they don’t have the payment gateway feature which normally every ecommerce sites have in their features.

# 3. Development

## 3.1 Methodology

Methodology is one is the essential for a project to complete. In order to complete the design, planning, implementation, and achievements of the project a project methodology is used by every project manager. There are different project management methods that ca be used in a project which is chosen according to the need of the project. (Reference tutorials point)

Having a good methodology can help to complete a project in a better way.

Available Methodologies

1. **Waterfall**

Waterfall model is a linear, sequential approach in software development life cycle (SDLC). Waterfall model is one of the most famous methodologies in project development. Waterfall model is similar to the flow of water which once one cannot be repeated. Distinct goals are set for each phase of development and cannot be revisited after completion. In this model the initial stage must be completed before the next step is started. There cannot be overlapping of any processes in this methodology. This methodology is used for the projects in which the needs and requirements are fixed and do not need to change.

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1. **Prototyping**

Prototyping methodology is the method where software development team, clarifies requirements and design elements, that generate mock-ups and prototypes of screens, reports, and processes. A prototype is built in this model which is tested and then reworked when needed until the final prototype Is built. Prototyping methodologies are not intended for business use.

The steps involved in prototyping model are:

1. Reequipment Gathering
2. Design
3. Build prototype
4. User Evaluation
5. Refining Prototype
6. Implementation and Maintain

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1. **Incremental Methodology**

To achieve a productive outcome, I have planned to use Incremental Methodology. Incremental Model is a process of development where there are standalone models being broken down from the development process of software development cycle. The steps followed in incremental modal are analysis, design, implementation, testing/verification, maintenance. Every iteration has to go through the process of requirement, design, coding and testing phases after which the release is made where furthermore functionalities are added until all designed functionality has been implemented. (Guru99, 2019) The elements of waterfall model with iterative philosophy of prototyping is consisted in this model. With this model I would like to complete the project in a convenient way by producing a release and modifying it according to the need of the client. (Ghahrai, 2018 )

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Selected Methodology

1. **Incremental Methodology**

For this project Incremental Methodology will be used due to following reasons:

1. **Unsure Requirements**

Even though the overall requirements of the program are all set there can be increase in the requirement as the development process takes place. Here relating registration with the requirements, there can be additional links to be added in order to link registration with Gmail ids. There can also be additional features to be added in the system which can be specified in the upcoming iterations and planned accordingly without harming the previous iterations.

1. **User Satisfaction**

It is an ecommerce site which means it is a must to satisfy the user to view products and make them happy with new kind of features. Since the requirement are gathered from the users it is easier for us to develop and add the required features in the system and recheck them in the further iterations.

In Incremental Methodology product is delivered frequently to the end users so that the developer can know the missing requirements in the system. Even if the delivered product does not fulfil the needs of the user, the features can be easily added in the next iteration due to which the user can be satisfied with the end result.

1. **Frequently used for web application and product-based applications**

Incremental Methodology is used for a new technology as there can be many features that need to be added from the user requirements.

Since this project is also a product-based application is can be helpful to use incremental methodology.

1. **Easy Risk Management**

Every project has its own risk whether it be high or low, but in the incremental methodology the risk management is minimised. When a login form is made with some features in an iteration the risks and the problem that arise can be solved in a convenient way which makes incremental methodology eligible for this project. The methodology helps the developer to understand the exact requirement that is needed for the iteration.

Since each piece is identified and handled during its iteration the risk of the project is minimised.

1. **Quality of the software**

The involvement of products in the website automatically increased the involvement of the user. The end product should be satisfying and error free so that the user can suggest it to other people as well.

In incremental methodology the product is tested along with the users to find out more features and requirements for the project. Since the project used a lot of user involvement, it can be free from bugs and run freely as the user desires. The quality of the project is automatically maintained due to the involvement of the users.

Not Selected Methodology

1. **Waterfall Methodology**

Waterfall methodology is one of the models not chosen for this project because of the following reasons:

1. Unknown Requirements

All the requirements of the project are not known. The requirements of the project may change along with the development of the projects. Important features can be added while the development of the system is done but, the waterfall model doesn’t allow the developer to add new requirements once the above iteration is completed. The project also requires are flexible model which waterfall cannot fulfil.

Waterfall model follows the sequential method which doesn’t allow us to add requirements in the future.

## Platforms

# 4. Progress

|  |  |  |  |
| --- | --- | --- | --- |
| Tasks | Start Date | Due Date | Status |
| Requirement Gathering |  |  | Completed |
| Design Wireframe |  |  | Completed |
| Development of Use Case Scenario |  |  | Completed |
| Create ER diagram of the system |  |  | Completed |
| Initial Development of the system |  |  | Completed |
| Research in Scraping |  |  | Pending |

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