

## Lab 5: API Project

### Objectives:

- To develop API-based websites to simulate the functionalities of e-commerce services among different organisations.

### Submission:

- Project showcasing.

### Description:

In this project, you will simulate the e-commerce functionalities among different organisations. You will need to consider three different organisations: an e-commerce organisation, similar to Daraz, a backend product supplier which supplies required products to the e-commerce organisation and a bank to facilitate transactions between different entities within this eco-system.

Within this setting, the assumptions for each organisation are the following:

- The e-commerce organisation only sells three products.
- These products are supplied by the supplier after its corresponding charges are transacted via the bank from the e-commerce organisation.
- A user can buy any amount of these three products from the e-commerce website after making a successful transaction via the bank.

The flow among these entities will be similar to something like this:

- ✓ A user logs in to the e-commerce website. After a successful login, the user lands into the home page.
- ✓ When in the home page for the first time, the user needs to set up his bank information (account number) and add a secret which can be used to transact with the bank.
- ✓ The user can view and buy the products from a corresponding page.
  - The user chooses products from these three products and decides to buy them.
- ✓ The amount required to buy them is calculated and a transaction request is sent to the bank with other bank information related to the user.
  - Once successful, a message is shown the user.
  - The e-commerce organisation interacts with the bank to create a transaction record that will allow the supplier to collect the required money for the order from the e-commerce organisation's account.
  - A request to supply the ordered products is submitted to the supplier with the transaction record.
  - The supplier validates this transaction record with the bank and once validated, the transaction amount is transferred to its account.
  - In the final step, this information is passed to the e-commerce organisation and the organisation updates its record so that the user can see that the chosen products have been supplied.
- There must be a mechanism for these entities – a user, the e-commerce organisation and the supplier- to get their bank balance.

These three organisations will expose their corresponding web APIs. All interactions among these organisations need to be carried out using these APIs. In your next lab, you will learn how to develop such APIs. You can use any platforms to develop these services even though the next lab will teach you to do this via nodejs.

It is to be noted that we have not considered many security considerations in this project as our focus is on the functionalities.

### Mark distribution:

The total marks of the project is 100. The mark distribution of the project is as follows:

Description	Mark
Requirements fulfilment	60
Design & Aesthetics	20
Q/A during showcasing	20

### Submission:

This project needs to be showcased to your teacher on a group basis. It is expected that everyone in the group will contribute equally during the development of the project. There will be rigorous Q/A session during the showcasing where each member of the group is expected to answer any question when asked.

The project needs to be showcased on 30 April. Your teacher will announce the schedule for this nearer to the time.