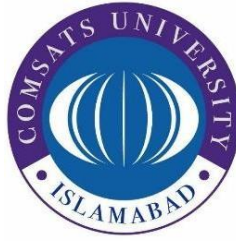


# COMSATS University Islamabad



## Project Proposal

*For*

## Courier Route Analyzer using A\*

Artificial Intelligence  
BCS - 5A

### *Submitted By*

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### *Submitted to*

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## 1. Abstract

Given a **parcel** that must be delivered from source to destination in a large area with several routes, the **optimal solution** would be to find the shortest route which will in turn generate the smallest cost. Our system will solve the courier or delivery service problem by means of the shortest path algorithm. The **suppliers**, i.e., end users of the system, will simply put their source and destination while the system calculates the shortest path on a graph with fixed topology and edge costs using **A\* algorithm**. A\* algorithm is the choice here due to its flexibility, and ability to potentially search in a huge area of the map.

A\* takes distance-to-goal + path-cost' score into consideration. As it traverses the network searching all neighbors, it follows lowest score path keeping a sorted **priority queue** of alternate path segments along the way. If any point being followed has a higher score than other encountered path segments, the higher score path is abandoned and a lower score sub-path traversed instead. This continues until the goal is reached.

## 2. Detailed Project Description

<i><b>Project Name</b></i>	<i><b>List of Functionalities</b></i>	<i><b>Tools &amp; Technologies</b></i>	<i><b>Group Members Responsible</b></i>
<i><b>Courier Route Analyzer using A* Algorithm</b></i>	<ul style="list-style-type: none"> <li>• Users will input their package details, i.e. source and destination name.</li> <li>• Given source and destination, program will calculate and define the minimum cost path from source to destination.</li> <li>• Minimum cost path will be visualized to user through Graphical User Interface.</li> <li>• User can also track the parcel being delivered.</li> <li>• User can get discounts through memberships.</li> <li>• With a Support &amp; Feedback panel, users can get instant customer service help.</li> </ul>	<b>Languages</b>	Task Division between: <ol style="list-style-type: none"> <li>1. Fatima Tuzzahra [FA20-BCS-019]</li> <li>2. Hunia Nadeem [FA20-BCS-024]</li> <li>3. Muhammad Anees [FA20-BCS-045]</li> </ol>
		<ul style="list-style-type: none"> <li>• Python</li> <li>• HTML</li> <li>• CSS</li> <li>• JavaScript</li> </ul>	
		<b>Tools</b>	
		Visual Studio Code	

### 3. Modules

- **Admin panel**

1. **Sign up**

Fields:

- ✓ Full Name
- ✓ Password
- ✓ Email
- ✓ Phone Number
- ✓ CNIC
- ✓ Employee ID

2. **Log in**

Fields:

- ✓ Employee ID
- ✓ Password

3. **Package Registration**

Generates package ID. Sends it to email/phone number

Fields:

- ✓ User Full Name
- ✓ User CNIC
- ✓ User Email
- ✓ User phone number
- ✓ Source city
- ✓ Destination city
- ✓ Destination postal code
- ✓ Destination address
- ✓ Package weight
- ✓ Package sensitivity check
- ✓ Membership Code (Optional)
- ✓ Cost estimate

4. **Customer Membership Registration**

On-site user membership. Generates Membership code. Sends it to Email/phone number (optional) Admin can search membership code for customer too.

Fields:

- ✓ Customer Full Name

- ✓ Customer CNIC
- ✓ Customer Email/phone number
- ✓ Search customer membership code [name + cnic]

**5. Package Tracker**

Admin can search package status and package id for customer

Fields:

- ✓ Package ID
- ✓ Search package id [name + cnic] -> displays list of all the pending items sent by the email along with their package ID

**6. Packages Log**

History of packages maintained

**7. Support & Feedback**

- **User panel**

**1. Package Tracker**

Fields:

- ✓ Package ID

**2. User Membership Registration**

Online membership by user. Generates membership code. Sends it to Email/phone number (optional)

Fields:

- ✓ User Full Name
- ✓ User CNIC
- ✓ User Email/phone number
- ✓ Payment details

**3. Support & Feedback**

**4. Company Information**

**5. Testimonials (optional)**