



Department of Computer Science & Engineering

PROJECT TITLE : Tourism Database Project – *Tour Underrated Places in Bangladesh at Low Cost.*

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MEMBERS ARE :

1. MD. PIASH KHONDOKAR [23101031]
2. SHANJIDA [23101036]
3. SANJID SHAHRIAR SAJIN [23101038]
4. HAMDIL HASAN PARTHO [23101040]
5. SUMAYA AKTER LIMA [23101041]

SUBMITTED TO :

NADEEM AHMED
ASSISTANT PROFESSOR,
DEPARTMENT OF COMPUTER SCIENCE
AND ENGINEERING,
UNIVERSITY OF ASIA PACIFIC.

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Database Name : Tour Underrated Places in Bangladesh at Low Cost

Introduction :

This project focuses on designing a comprehensive relational database system to manage and streamline information about underrated, budget-friendly tourist destinations in Bangladesh. Aimed at promoting sustainable and affordable tourism, the system offers structured data on destinations, accommodations, attractions, transportation, tour packages, and guides. By highlighting lesser known yet culturally rich locations, the database enables travelers to make informed decisions while encouraging regional tourism development and economic inclusion. The platform not only enhances trip planning efficiency but also supports the discovery of hidden treasures across the country.

Tables :

- **Tourist_Spots**
- **Tours**
- **Tour_Guides**
- **Tour_Guide_Assignments**
- **Customers**
- **Bookings**
- **Reviews**
- **Transportation**
- **Spot_Transport_Links**
- **Discounts**
- **Local_Shops**
- **Emergency_Contacts**
- **Online_Payment**
- **Accommodations**
- **Accommodation_Bookings**

Overview :

1. TOURIST_SPOTS

- **Description:** Stores information about tourist attractions (e.g., parks, museums, landmarks) within the tourism system.
- **Attributes:**
 - Spot_ID (INT, PK, IDENTITY): Unique identifier for each tourist spot.
 - Spot_Name (NVARCHAR(100), NOT NULL): Name of the tourist spot.
 - Location (NVARCHAR(100), NOT NULL): Geographical location or address.
 - Description (NVARCHAR(MAX)): Detailed description of the spot.
 - Entry_Fee (DECIMAL(10, 2), DEFAULT 0.00): Entry fee to the spot.
 - Best_Time_to_Visit (NVARCHAR(50), NOT NULL): Recommended visiting season/time.
- **Normalization:** 3NF. No transitive or partial dependencies; primary key (Spot_ID) determines all other attributes.
- **Relations:**
 - 1:N
with Tours, Reviews, Spot_Transport_Links, Local_Shops, Emergency_Contacts, Accommodations (A spot can have many related entries in each).
- **Cardinality:**
 - 1:N (One Tourist_Spot can be linked to many Tours, Reviews, Spot_Transport_Links, Local_Shops, Emergency_Contacts, Accommodations).

2. TOURS

- **Description:** Details available tours, each linked to a specific tourist spot.
- **Attributes:**
 - Tour_ID (INT, PK, IDENTITY): Unique tour identifier.
 - Tour_Name (NVARCHAR(100), NOT NULL): Name of the tour.
 - Spot_ID (INT, FK, NOT NULL): Linked tourist spot.
 - Tour_Fee (DECIMAL(10, 2), DEFAULT 0.00): Fee for the tour.
 - Duration (NVARCHAR(50), NOT NULL): Duration/length of the tour.
- **Normalization:** 3NF. Primary key (Tour_ID) determines all other fields; Spot_ID is a foreign key.
- **Relations:**
 - N:1 with Tourist_Spots (Each tour is for one spot)
 - 1:N with Tour_Guide_Assignments, Bookings, Discounts (A tour can have many assignments/bookings/discounts)
- **Cardinality:**
 - N:1 with Tourist_Spots
 - 1:N with Tour_Guide_Assignments, Bookings, Discounts

3. TOUR_GUIDES

- **Description:** Stores information about available tour guides.
 - **Attributes:**
 - Guide_ID (INT, PK, IDENTITY): Unique identifier.
 - Guide_Name (NVARCHAR(100), NOT NULL): Name of the guide.
 - Contact_Info (NVARCHAR(100), UNIQUE): Contact details.
 - Language_Skills (NVARCHAR(100), NOT NULL): Languages spoken.
 - Experience_Years (INT, CHECK >= 0): Years of guiding experience.
 - **Normalization:** 3NF. All fields are atomic and depend on the primary key.
 - **Relations:**
 - 1:N with Tour_Guide_Assignments (A guide can be assigned to multiple tours)
 - **Cardinality:**
 - 1:N with Tour_Guide_Assignments
-

4. TOUR_GUIDE_ASSIGNMENTS

- **Description:** Assigns guides to specific tours.
 - **Attributes:**
 - Assignment_ID (INT, PK, IDENTITY): Unique record for each assignment.
 - Tour_ID (INT, FK, NOT NULL): Linked tour.
 - Guide_ID (INT, FK, NOT NULL): Linked guide.
 - **Normalization:** 3NF. Composite relationship table; all fields depend on the primary key.
 - **Relations:**
 - N:1 with Tours (Many assignments per tour)
 - N:1 with Tour_Guides (Many assignments per guide)
 - **Cardinality:**
 - N:1 with Tours, N:1 with Tour_Guides
-

5. CUSTOMERS

- **Description:** Stores customer information for bookings and reviews.
 - **Attributes:**
 - Customer_ID (INT, PK, IDENTITY): Unique customer ID.
 - Customer_Name (NVARCHAR(100), NOT NULL): Name of the customer.
 - Contact_Info (NVARCHAR(100), UNIQUE): Contact information.
 - Preferred_Language (NVARCHAR(50)): Language preference.
 - **Normalization:** 3NF. All details depend on Customer_ID.
 - **Relations:**
 - 1:N with Bookings and Reviews (A customer can make many bookings/reviews)
 - **Cardinality:**
 - 1:N with Bookings, 1:N with Reviews
-

6. BOOKINGS

- **Description:** Records bookings of tours by customers.
 - **Attributes:**
 - Booking_ID (INT, PK, IDENTITY): Unique booking identifier.
 - Customer_ID (INT, FK, NOT NULL): Customer making the booking.
 - Tour_ID (INT, FK, NOT NULL): Tour being booked.
 - Booking_Date (DATE, NOT NULL): Date of booking.
 - Total_Cost (DECIMAL(10,2), DEFAULT 0.00): Total cost of the booking.
 - **Normalization:** 3NF. Each booking is atomic and depends on Booking_ID.
 - **Relations:**
 - N:1 with Customers and Tours (Many bookings per customer/tour)
 - 1:N with Online_Payment, Accommodation_Bookings
 - **Cardinality:**
 - N:1 with Customers, N:1 with Tours
 - 1:N with Online_Payment, 1:N with Accommodation_Bookings
-

7. REVIEWS

- **Description:** Customer reviews for tourist spots.
 - **Attributes:**
 - Review_ID (INT, PK, IDENTITY): Unique review identifier.
 - Spot_ID (INT, FK, NOT NULL): Reviewed spot.
 - Customer_ID (INT, FK, NOT NULL): Reviewer.
 - Review_Text (NVARCHAR(MAX)): Review details.
 - Rating (INT, CHECK 1-5): Rating score.
 - **Normalization:** 3NF. No transitive dependencies.
 - **Relations:**
 - N:1 with Tourist_Spots, N:1 with Customers
 - **Cardinality:**
 - N:1 with Tourist_Spots, N:1 with Customers
-

8. TRANSPORTATION

- **Description:** Information on available transportation types.
 - **Attributes:**
 - Transport_ID (INT, PK, IDENTITY): Unique transport identifier.
 - Transport_Type (NVARCHAR(50), NOT NULL): Type (e.g., bus, taxi).
 - Cost_Per_Trip (DECIMAL(10,2), DEFAULT 0.00): Trip cost.
 - Availability (NVARCHAR(50), NOT NULL): Availability status.
 - **Normalization:** 3NF.
 - **Relations:**
 - 1:N with Spot_Transport_Links
-

- **Cardinality:**
 - 1:N with Spot_Transport_Links
-

9. SPOT_TRANSPORT_LINKS

- **Description:** Links tourist spots to available transportation.
 - **Attributes:**
 - Link_ID (INT, PK, IDENTITY): Unique link identifier.
 - Spot_ID (INT, FK, NOT NULL): Linked spot.
 - Transport_ID (INT, FK, NOT NULL): Linked transportation.
 - Comments (NVARCHAR(MAX)): Additional notes.
 - **Normalization:** 3NF.
 - **Relations:**
 - N:1 with Tourist_Spots, N:1 with Transportation
 - **Cardinality:**
 - N:1 with Tourist_Spots, N:1 with Transportation
-

10. DISCOUNTS

- **Description:** Discount offers on tours.
 - **Attributes:**
 - Discount_ID (INT, PK, IDENTITY): Unique discount identifier.
 - Tour_ID (INT, FK, NOT NULL): Tour to which discount applies.
 - Discount_Percentage (DECIMAL(5,2), CHECK 0-100): Discount percent.
 - Start_Date (DATE, NOT NULL): Start of discount.
 - End_Date (DATE, NOT NULL): End of discount.
 - **Normalization:** 3NF.
 - **Relations:**
 - N:1 with Tours
 - **Cardinality:**
 - N:1 with Tours
-

11. LOCAL_SHOPS

- **Description:** Stores information about local shops near tourist spots.
 - **Attributes:**
 - Shop_ID (INT, PK, IDENTITY): Unique shop identifier.
 - Shop_Name (NVARCHAR(100), NOT NULL): Shop name.
 - Spot_ID (INT, FK, NOT NULL): Linked spot.
 - Product_Type (NVARCHAR(100)): Type of products sold.
 - **Normalization:** 3NF.
 - **Relations:**
 - N:1 with Tourist_Spots
-

- **Cardinality:**
 - N:1 with Tourist_Spots

12. EMERGENCY_CONTACTS

- **Description:** Emergency contacts at tourist spots.
- **Attributes:**
 - Contact_ID (INT, PK, IDENTITY): Unique contact identifier.
 - Spot_ID (INT, FK, NOT NULL): Linked spot.
 - Contact_Type (NVARCHAR(50), NOT NULL): Type (e.g., police, medical).
 - Contact_Number (NVARCHAR(20), UNIQUE): Contact number.
- **Normalization:** 3NF.
- **Relations:**
 - N:1 with Tourist_Spots
- **Cardinality:**
 - N:1 with Tourist_Spots

13. ONLINE_PAYMENT

- **Description:** Tracks online payments for bookings.
- **Attributes:**
 - Payment_ID (INT, PK, IDENTITY): Unique payment identifier.
 - Booking_ID (INT, FK, NOT NULL): Linked booking.
 - Payment_Date (DATE, NOT NULL): Date of payment.
 - Payment_Amount (DECIMAL(10,2), NOT NULL): Amount paid.
 - Payment_Method (NVARCHAR(50), NOT NULL): Method (e.g., card, PayPal).
 - Payment_Status (NVARCHAR(50), NOT NULL): Status (e.g., completed).
- **Normalization:** 3NF.
- **Relations:**
 - N:1 with Bookings
- **Cardinality:**
 - N:1 with Bookings

14. ACCOMMODATIONS

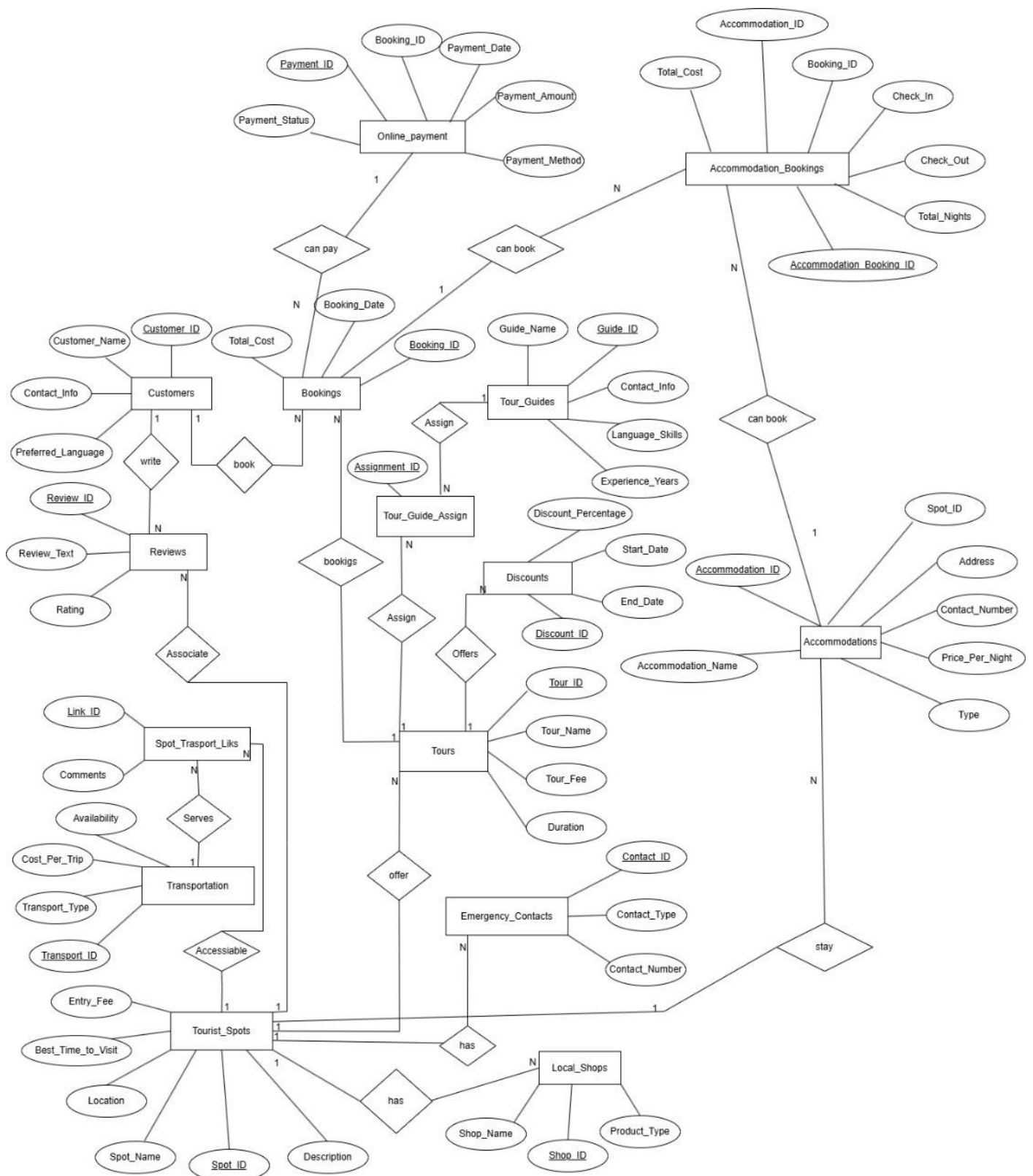
- **Description:** Accommodation options at or near tourist spots.
- **Attributes:**
 - Accommodation_ID (INT, PK, IDENTITY): Unique identifier.
 - Accommodation_Name (NVARCHAR(100), NOT NULL): Name.
 - Spot_ID (INT, FK, NOT NULL): Linked spot.
 - Type (NVARCHAR(50), NOT NULL): Accommodation type.
 - Address (NVARCHAR(200)): Address.
 - Price_Per_Night (DECIMAL(10,2), NOT NULL): Price per night.

- Contact_Number (NVARCHAR(20)): Contact info.
 - **Normalization:** 3NF.
 - **Relations:**
 - N:1 with Tourist_Spots
 - 1:N with Accommodation_Bookings
 - **Cardinality:**
 - N:1 with Tourist_Spots
 - 1:N with Accommodation_Bookings
-

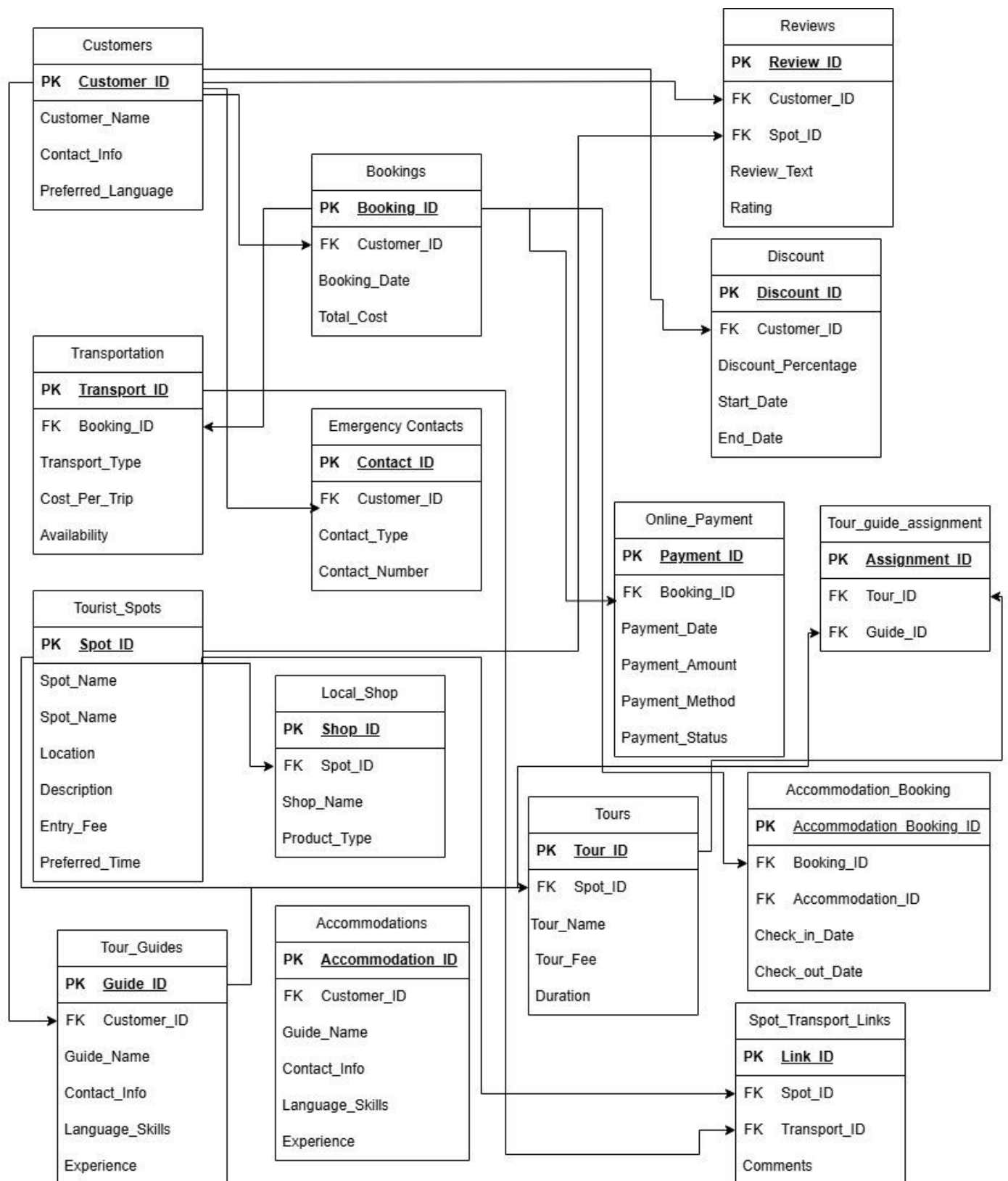
15. ACCOMMODATION_BOOKINGS

- **Description:** Links customer bookings to accommodations.
- **Attributes:**
 - Accommodation_Booking_ID (INT, PK, IDENTITY): Unique record.
 - Booking_ID (INT, FK, NOT NULL): Linked booking.
 - Accommodation_ID (INT, FK, NOT NULL): Linked accommodation.
 - Check_In (DATE, NOT NULL): Check-in date.
 - Check_Out (DATE, NOT NULL): Check-out date.
 - Total_Nights (INT, NOT NULL): Number of nights.
 - Total_Cost (DECIMAL(10,2), NOT NULL): Total cost.
- **Normalization:** 3NF.
- **Relations:**
 - N:1 with Bookings
 - N:1 with Accommodations
- **Cardinality:**
 - N:1 with Bookings
 - N:1 with Accommodations

ER Diagram :



Schema Diagram :



Queries :

Query 1. List all tourist spots with their entry fees

```
SELECT Spot_Name, Location, Entry_Fee  
FROM Tourist_Spots  
ORDER BY Spot_Name;
```

RESULT:

	Spot_Name	Location	Entry_Fee
1	Ahsan Manzil	Dhaka	20.00
2	Bandarban	Bandarban	40.00
3	Boga Lake	Bandarban	20.00
4	Cox's Bazar	Cox's Bazar	100.00
5	Jaflong	Sylhet	35.00
6	Kuakata	Patuakhali	0.00
7	Lalakhali	Sylhet	25.00
8	Madhabkunda Waterfall	Sylhet	50.00
9	Mahasthangarh	Bogura	30.00
10	Nilgiri	Bandarban	60.00
11	Paharpur	Naogaon	40.00
12	Panam City	Sonargaon	30.00
13	Rangamati	Rangamati	25.00
14	Ratargul Swamp Forest	Sylhet	30.00
15	Saint Martin's Island	Cox's Bazar	100.00
16	Sajek Valley	Rangamati	50.00
17	Shalban Vihara	Comilla	25.00
18	Sitakunda	Chattogram	15.00
19	Srimangal	Moulvibazar	20.00
20	Sundarbans	Khulna	150.00
21	Tanguar Haor	Sunamganj	40.00

Query 2. Show all tours and their related tourist spot

```
SELECT T.Tour_Name, S.Spot_Name, T.Tour_Fee, T.Duration  
FROM Tours T  
JOIN Tourist_Spots S ON T.Spot_ID = S.Spot_ID;
```

RESULT:

	Tour_Name	Spot_Name	Tour_Fee	Duration
1	Sajek Adventure	Sajek Valley	2500.00	2 Days
2	Ratargul Boat Tour	Ratargul Swamp Forest	1200.00	1 Day
3	Cox's Bazar Beach Tour	Cox's Bazar	4000.00	3 Days
4	Sundarban Wildlife Safari	Sundarbans	6000.00	3 Days
5	Srimangal Tea Garden Walk	Srimangal	800.00	1 Day
6	Bandarban Explorer	Bandarban	2200.00	2 Days
7	Nilgiri Hill Retreat	Nilgiri	3000.00	2 Days
8	Lalakhali Boat Cruise	Lalakhali	1800.00	1 Day
9	Mahasthangarh Heritage Tour	Mahasthangarh	1000.00	1 Day
10	Kuakata Sunrise Trip	Kuakata	1600.00	2 Days
11	Paharpur Ruins Visit	Paharpur	1100.00	1 Day
12	Jaflong Nature Day	Jaflong	900.00	1 Day
13	Old Dhaka Heritage	Ahsan Manzil	1200.00	Half Day
14	Panam City Photowalk	Panam City	950.00	Half Day
15	Boga Lake Trek	Boga Lake	2500.00	3 Days
16	Rangamati Lake Tour	Rangamati	2100.00	2 Days
17	Waterfall Adventure	Madhabkunda Waterfall	1300.00	1 Day
18	Shalban Vihara History	Shalban Vihara	1400.00	1 Day
19	Sitakunda Eco Hike	Sitakunda	950.00	1 Day
20	Saint Martin's Coral Trip	Saint Martin's Island	5000.00	3 Days
21	Tanguar Haor Birdwatch	Tanguar Haor	1700.00	2 Days

Query 3. Find all available guides and their experience

SELECT Guide_Name, Language_Skills, Experience_Years
FROM Tour_Guides;

RESULT:

	Guide_Name	Language_Skills	Experience_Years
1	Abdul Karim	Bengali, English	4
2	Selina Akter	Bengali, Hindi	3
3	Rafiq Islam	Bengali, English	5
4	Nasima Begum	Bengali, English	2
5	Jamal Uddin	Bengali, Mama	6
6	Shirin Ahmed	Bengali	3
7	Rezaul Karim	Bengali, English	7
8	Mukta Rahman	Bengali, English	2
9	Tarek Aziz	Bengali, Chakma	4
10	Fahim Chowdhury	Bengali, English	5
11	Rumana Yasmin	Bengali, English	3
12	Sazzad Hossain	Bengali, English	8
13	Lamia Islam	Bengali	1
14	Shafiqul Islam	Bengali, English, Hindi	10
15	Anisur Rahman	Bengali, English	6
16	Sabina Yasmin	Bengali, English	4
17	Belal Ahmed	Bengali	5
18	Farzana Parvin	Bengali, English	2
19	Azizul Haque	Bengali, English	9
20	Tahmina Sultana	Bengali	3
21	Moinul Islam	Bengali, English	4

Query 4. See which guide is assigned to which tour

```
SELECT TG.Guide_Name, T.Tour_Name
FROM Tour_Guide_Assignments GA
JOIN Tour_Guides TG ON GA.Guide_ID = TG.Guide_ID
JOIN Tours T ON GA.Tour_ID = T.Tour_ID
ORDER BY TG.Guide_Name;
```

RESULT:

	Guide_Name	Tour_Name
1	Abdul Karim	Sajek Adventure
2	Anisur Rahman	Boga Lake Trek
3	Azizul Haque	Sitakunda Eco Hike
4	Belal Ahmed	Waterfall Adventure
5	Fahim Chowdhury	Kuakata Sunrise Trip
6	Farzana Parvin	Shalban Vihara History
7	Jamal Uddin	Srimangal Tea Garden Walk
8	Lamia Islam	Old Dhaka Heritage
9	Mukta Rahman	Lalakhal Boat Cruise
10	Nasima Begum	Sundarban Wildlife Safari
11	Rafiq Islam	Cox's Bazar Beach Tour
12	Rezaul Karim	Nilgiri Hill Retreat
13	Rumana Yasmin	Paharpur Ruins Visit
14	Sabina Yasmin	Rangamati Lake Tour
15	Sazzad Hossain	Jaflong Nature Day
16	Selina Akter	Ratargul Boat Tour
17	Shafiqul Islam	Panam City Photowalk
18	Shirin Ahmed	Bandarban Explorer
19	Tahmina Sultana	Saint Martin's Coral Trip
20	Tarek Aziz	Mahasthangarh Heritage ...

Query 5. List all customers who booked a tour

```
SELECT DISTINCT C.Customer_Name, C.Contact_Info
FROM Bookings B
JOIN Customers C ON B.Customer_ID = C.Customer_ID;
```

RESULT :

	Customer_Name	Contact_Info
1	Md. Asif Rahman	asif.rahman@bdmail.com
2	Sadia Islam	sadia.islam@bdmail.com
3	Zahid Hasan	zahid.hasan@bdmail.com
4	Khaleda Akter	khaleda.akter@bdmail.com
5	Farhan Ahmed	farhan.ahmed@bdmail.com
6	Rumi Parvin	rumi.parvin@bdmail.com
7	Rayhan Hossain	rayhan.hossain@bdmail.com
8	Papia Sultana	papia.sultana@bdmail.com
9	Ayesha Siddiqua	ayesha.siddiqua@bdmail.c...
10	Sohag Mia	sohag.mia@bdmail.com
11	Mamun Khan	mamun.khan@bdmail.com
12	Tania Rahman	tania.rahman@bdmail.com
13	Sakib Al Hasan	sakib.al.hasan@bdmail.com
14	Rifat Jahan	rifat.jahan@bdmail.com
15	Jannatul Ferdous	jannatul.ferdous@bdmail.c...
16	Rasel Ahmed	rasel.ahmed@bdmail.com
17	Nusrat Jahan	nusrat.jahan@bdmail.com
18	Shuvo Chowdh...	shuvo.chowdhury@bdmail...
19	Farzana Haque	farzana.haque@bdmail.com
20	Aman Hossain	aman.hossain@bdmail.com

Query 6. Show bookings with customer, tour name and booking date
SELECT C.Customer_Name, T.Tour_Name, B.Booking_Date, B.Total_Cost
FROM Bookings B
JOIN Customers C ON B.Customer_ID = C.Customer_ID
JOIN Tours T ON B.Tour_ID = T.Tour_ID
ORDER BY B.Booking_Date DESC;

RESULT:

	Customer_Name	Tour_Name	Booking_Date	Total_Cost
1	Aman Hossain	Saint Martin's Coral Trip	2025-03-20	5000.00
2	Farzana Haque	Sitakunda Eco Hike	2025-03-15	950.00
3	Shuvo Chowdhury	Shalban Vihara History	2025-03-12	1400.00
4	Nusrat Jahan	Waterfall Adventure	2025-03-10	1300.00
5	Rasel Ahmed	Rangamati Lake Tour	2025-03-05	2100.00
6	Jannatul Ferdous	Boga Lake Trek	2025-03-01	2500.00
7	Rifat Jahan	Panam City Photowalk	2025-02-27	950.00
8	Sakib Al Hasan	Old Dhaka Heritage	2025-02-25	1200.00
9	Tania Rahman	Jaflong Nature Day	2025-02-22	900.00
10	Mamun Khan	Paharpur Ruins Visit	2025-02-20	1100.00
11	Sohag Mia	Kuakata Sunrise Trip	2025-02-17	1600.00
12	Ayesha Siddiqua	Mahasthangarh Herit...	2025-02-14	1000.00
13	Papia Sultana	Lalakhai Boat Cruise	2025-02-10	1800.00
14	Rayhan Hossain	Nilgiri Hill Retreat	2025-02-05	3000.00
15	Rumi Parvin	Bandarban Explorer	2025-02-01	2200.00
16	Farhan Ahmed	Srimangal Tea Garde...	2025-01-28	800.00
17	Khaleda Akter	Sundarban Wildlife S...	2025-01-25	6000.00
18	Zahid Hasan	Cox's Bazar Beach T...	2025-01-20	4000.00
19	Sadia Islam	Ratargul Boat Tour	2025-01-15	1200.00
20	Md. Asif Rahman	Sajek Adventure	2025-01-10	2500.00

Query 7. Display reviews for any spot (example: Sajek Valley)

```
SELECT C.Customer_Name, R.Review_Text, R.Rating
FROM Reviews R
JOIN Customers C ON R.Customer_ID = C.Customer_ID
JOIN Tourist_Spots S ON R.Spot_ID = S.Spot_ID
WHERE S.Spot_Name = 'Sajek Valley';
```

RESULT:

	Customer_Name	Review_Text	Rating
1	Md. Asif Rahman	Amazing mountain views!	5

Query 8. List all transport types available for a spot (example: Cox's Bazar)

```
SELECT S.Spot_Name, T.Transport_Type, T.Cost_Per_Trip
FROM Spot_Transport_Links STL
JOIN Tourist_Spots S ON STL.Spot_ID = S.Spot_ID
JOIN Transportation T ON STL.Transport_ID = T.Transport_ID
WHERE S.Spot_Name = 'Cox's Bazar';
```

RESULT:

	Spot_Name	Transport_Type	Cost_Per_Trip
1	Cox's Bazar	Train	900.00

Query 9. Show current discounts for tours (if any)

```
SELECT T.Tour_Name, D.Discount_Percentage, D.Start_Date, D.End_Date
FROM Discounts D
JOIN Tours T ON D.Tour_ID = T.Tour_ID
WHERE GETDATE() BETWEEN D.Start_Date AND D.End_Date;
```

RESULT:

	Tour_Name	Discount_Percentage	Start_Date	End_Date
1	Sajek Adventure	10.00	2025-05-05	2025-05-15
2	Ratargul Boat Tour	15.00	2025-05-01	2025-05-20
3	Cox's Bazar Beach Tour	20.00	2025-05-10	2025-05-17
4	Sundarban Wildlife Safari	8.00	2025-05-09	2025-05-13
5	Srimangal Tea Garden Walk	12.00	2025-05-07	2025-05-12

Query 10. List all accommodations available at a spot (example: Srimangal)

```
SELECT S.Spot_Name, A.Accommodation_Name, A.Type, A.Price_Per_Night
FROM Accommodations A
JOIN Tourist_Spots S ON A.Spot_ID = S.Spot_ID
WHERE S.Spot_Name = 'Srimangal';
```

RESULT:

	Spot_Name	Accommodation_Name	Type	Price_Per_Night
1	Srimangal	Tea Heaven	Hotel	2200.00

Query 11. Show all emergency contacts for a spot (example: Sundarbans)

```
SELECT S.Spot_Name, E.Contact_Type, E.Contact_Number
FROM Emergency_Contacts E
JOIN Tourist_Spots S ON E.Spot_ID = S.Spot_ID
WHERE S.Spot_Name = 'Sundarbans';
```

RESULT:

	Spot_Name	Contact_Type	Contact_Number
1	Sundarbans	Rescue	01700000004

Query 12. Find all bookings with accommodation details (customer, hotel, check-in, check-out)

```
SELECT C.Customer_Name, A.Accommodation_Name, AB.Check_In, AB.Check_Out,
AB.Total_Cost
FROM Accommodation_Bookings AB
JOIN Bookings B ON AB.Booking_ID = B.Booking_ID
JOIN Customers C ON B.Customer_ID = C.Customer_ID
JOIN Accommodations A ON AB.Accommodation_ID = A.Accommodation_ID
ORDER BY AB.Check_In DESC;
```

RESULT:

	Customer_Name	Accommodation_Name	Check_In	Check_Out	Total_Cost
1	Aman Hossain	Sitakunda Guest House	2025-03-20	2025-03-23	11100.00
2	Farzana Haque	Shalban Resort	2025-03-15	2025-03-16	1600.00
3	Shuvo Chowdhury	Waterfall Inn	2025-03-12	2025-03-14	4400.00
4	Nusrat Jahan	Lake View Resort	2025-03-10	2025-03-11	1800.00
5	Rasel Ahmed	Boga Lake Eco Resort	2025-03-05	2025-03-07	5600.00
6	Jannatul Ferdous	Panam Heritage Stay	2025-03-01	2025-03-03	5400.00
7	Rifat Jahan	Pink Palace Hotel	2025-02-27	2025-02-28	2400.00
8	Sakib Al Hasan	Jaflong Resort	2025-02-25	2025-02-26	2600.00
9	Tania Rahman	Paharpur Resthouse	2025-02-22	2025-02-23	2300.00
10	Mamun Khan	Kuakata Sea Breeze	2025-02-20	2025-02-22	3400.00
11	Sohag Mia	Heritage Inn	2025-02-17	2025-02-20	6300.00
12	Ayesha Siddiqua	Lalakhal Cottage	2025-02-14	2025-02-16	4000.00
13	Papia Sultana	Nilgiri Stay	2025-02-10	2025-02-11	1800.00
14	Rayhan Hossain	Bandarban Hill Resort	2025-02-05	2025-02-07	6000.00
15	Rumi Parvin	Tea Heaven	2025-02-01	2025-02-04	6600.00
16	Farhan Ahmed	Tiger Point Resort	2025-01-28	2025-01-29	5500.00
17	Khaleda Akter	Cox Beach Hotel	2025-01-25	2025-01-28	12000.00
18	Zahid Hasan	Swamp Forest Inn	2025-01-20	2025-01-22	4000.00
19	Sadia Islam	Valley View Cottage	2025-01-15	2025-01-17	5000.00
20	Md. Asif Rahman	Sajek Resort	2025-01-10	2025-01-12	7000.00

Complex Engineering Problems (CEP) Mapping:

Knowledge Profile(K) (CEP Attributes)

Attribute	Description
K1	A systematic, theory-based understanding of the natural sciences applicable to the discipline
K2	Conceptually based mathematics, numerical analysis, statistics and the formal aspects of computer science
K3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline
K4	Specialist knowledge that provides theoretical frameworks and bodies of knowledge for accepted practice
K5	Knowledge that supports engineering design in a practice area
K6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline
K7	Role of engineering in society, issues in practice, ethics, social, economic, cultural, environmental impact
K8	Engagement with selected knowledge in the research literature of the discipline

Mapping CEP Attributes to Project :

K1: Theory-based Understanding of Natural Sciences

- Recognizing the geographical, environmental, and seasonal factors (e.g., **Best_Time_to_Visit** for each spot).
- Ensures tourists receive information relevant to nature, climate, and local conditions.

K2: Mathematics, Analysis, Computer Science

- Database design (tables, keys, constraints), SQL query formulation, and data integrity.
- Analysis of tourist flows, pricing, reviews, and optimization of discounts using stored data.

K3: Engineering Fundamentals

- Relational schema design (primary/foreign keys, normalization) ensures robust, error-free data management.
- Logical connections between entities: Tours, Spots, Bookings, Guides, Transportation, etc.

K4: Specialist Knowledge

- Applying tourism domain expertise to structure data (e.g., linking shops, accommodations, transport to spots).

- Integrating best practices from both software and tourism fields.

K5: Design Knowledge

- Schema supports real-world operations: managing bookings, assigning guides, handling payments and reviews.
- Enables efficient, low-cost tour management and customer service.

K6: Engineering Practice (Technology)

- Implementation of online booking, payment, and guide assignment systems.
- Use of technology for seamless integration of information and services.

K7: Engineering in Society, Ethics, Professionalism

- Promotes tourism in lesser-known regions, supporting local businesses and communities.
- Includes safety (emergency contacts), privacy (unique customer info), and sustainability (eco-friendly options).

K8: Engagement with Research

- Incorporates research on tourism trends, customer needs, and cost-effective solutions.
- Schema evolves based on new findings and user feedback.

Example Table Mapping

CEP	Example Table/Feature	Explanation
K1	Tourist_Spots (Best_Time_to_Visit, Location)	Scientific/geographical information for tourists
K2	SQL Queries, Discounts, Reviews	Data analytics, optimization, computer science application
K3	Primary/Foreign Keys, Constraints	Systematic, logical database design
K4	All normalized tables	Applied tourism and IT knowledge
K5	Bookings, Assignments, Transport	Practical tour management functions
K6	Online_Payment, Accommodations	Technology solutions in practice
K7	Emergency_Contacts, Shops, Reviews	Societal, safety, sustainability and ethics
K8	Discounts, evolving schema	Based on research and industry best practices

Complex Engineering Problem (CEP) Problem Solving Mapping(P) :

Table: Mapping Project to CEP Problem Solving Attributes

Attribute	Medium Connection to Project
P1: Depth of knowledge required	The project needs solid expertise in database design, normalization, and integrating tourism-specific requirements. Understanding relational modeling, data integrity, and secure payment processing is essential for building the system.
P2: Range of conflicting requirements	There are competing needs: providing low-cost options for tourists while supporting local business profits, ensuring usability, maintaining privacy, and delivering reliable technical solutions. Trade-offs are required between cost, comfort, sustainability, and convenience.
P3: Depth of analysis required	The system design is not straightforward—it requires innovative approaches for handling discounts, dynamic bookings, seasonal tourism patterns, and emergency scenarios. Solutions must be tailored to Bangladesh’s unique tourism context.
P4: Familiarity of issues	The project addresses uncommon problems: promoting underrated destinations, connecting local businesses, and boosting rural economic activity—all less familiar in typical tourism apps.
P5: Extent of applicable codes	It must adhere to standards for data security, payment methods, and possibly comply with local regulations for tourism and commerce. Online payment integration especially demands attention to industry practices.
P6: Stakeholder involvement & conflicts	Many different stakeholders are involved: tourists, guides, shopkeepers, transport services, hotels, and local authorities. Their interests often conflict, and the system must accommodate and balance these varied needs.
P7: Interdependence	The platform consists of multiple interconnected modules—tours, bookings, guides, payments, reviews, accommodations, shops, transport, and discounts. Each part depends on others for smooth operation and complete service.

Summary Table

CEP Attribute	Project Connection Example
P1	Complex relational schema, advanced SQL, payment integration (requires deep knowledge)
P2	Balancing low-cost, comfort, business needs, privacy, and technical feasibility
P3	Creative solutions for dynamic discounts, local economic engagement, new spot promotion
P4	Integration of local shops, emergency contacts, and lesser-known spots
P5	Payment security, data privacy, tourism regulations
P6	Tourists, guides, shopkeepers, transport, authorities—diverse, sometimes conflicting needs
P7	Integrated system: bookings, payments, reviews, transport, discounts, accommodations

Complex Engineering Activities (A) Mapping

Attribute	Connection to Project
A1: Range of resources	The project uses diverse resources: people (tourists, guides, shop owners), money (tour fees, payments, discounts), technology (database, online bookings/payments), materials (accommodations, transport), and information (tourist spot data, reviews, emergency contacts).
A2: Level of interaction	Significant interactions must be resolved between different technical, organizational, and real-world issues: conflicting needs of tourists, local businesses, transport providers, and authorities (e.g., cost vs. quality, privacy vs. accessibility, business vs. service).
A3: Innovation	The project applies database and tourism management principles in creative ways: integrating local businesses, offering dynamic discounts, and connecting lesser-known spots using novel, research-informed approaches.
A4: Consequences for society and the environment	The system impacts local economies by promoting rural tourism and supporting local businesses, and also addresses sustainability (eco-tourism, low-cost travel, safety). Decisions in the database design influence economic opportunity and environmental outcomes.
A5: Familiarity	The project goes beyond standard travel apps by applying engineering/database principles to new problems, like boosting rural tourism, integrating local shops, and managing complex, interdependent travel logistics unique to Bangladesh.

Summary

The project "Tour Underrated Places in Bangladesh at Low Cost" exemplifies complex engineering in every dimension. It integrates advanced theoretical and practical knowledge (K), tackles multifaceted and original problem-solving challenges (P), and orchestrates diverse resources and innovation in its activities (A). The system not only addresses technical and organizational needs but also promotes social, economic, and environmental benefits, demonstrating engineering excellence in a real-world context.