MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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Skill Based Mini Project Report

on

"Unified Travelling and Transport System"

Database Management System Lab (150412)

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ABSTRACT

The Unified Travelling and Transport System (UTTS) is a software application that provides a unified platform for booking and managing travelling and transportation services. The system is built using Python programming language and employs a database management system to store and manage information related to travelling and transportation services.

The UTTS offers a seamless booking experience to its users, allowing them to search for and book transportation services from a single platform. The system also provides real-time information on the availability of different transportation services and their schedules.

The database management system used in the UTTS is designed to handle large amounts of data related to different transportation services. It offers efficient data storage and retrieval capabilities, ensuring that the system can handle a large number of users and transactions.

The UTTS also incorporates advanced security features to protect user data and prevent unauthorized access. The system ensures that user information is encrypted and stored securely, and access to sensitive data is restricted only to authorized personnel.

Overall, the UTTS offers a reliable and efficient platform for booking and managing transportation services, making travel planning easy and convenient for users.

Keyword: Unified Travelling and Transport System, database management system, transportation services, real-time information, advanced security measures, data storage and retrieval.

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Chapter 1: INTRODUCTION

1.1 Introduction to UTTS:

The Unified Travelling and Transport System (UTTS) is a comprehensive platform that allows users to search, book, and manage various transportation services such as public transport, ride-sharing, and logistics, among others. The UTTS leverages a database management system (DBMS) to store and retrieve data related to transportation services, including routes, schedules, pricing, and availability.

The use of a DBMS ensures that the system can handle large amounts of data efficiently, enabling users to access real-time information on transportation services. The UTTS also incorporates advanced security measures to protect user data and ensure secure access to transportation services. The integration of a DBMS into the UTTS provides several benefits, including improved efficiency, scalability, and data security. The UTTS is a powerful tool for streamlining transportation planning and management, providing users with a unified and efficient experience for booking and managing transportation services.

1.2 Objective:

The Unified Travelling and Transport System (UTTS) has several objectives, which include:

1. **Providing a unified platform:** The primary objective of the UTTS is to provide a unified platform for users to access information related to different transportation services. By consolidating information from various sources, the UTTS aims to simplify the process of booking transportation services for users.

2. **Efficient data management:** The UTTS employs a database management system that is designed to handle large amounts of data related to different transportation services. The system aims to ensure efficient data storage and retrieval, making it capable of handling a large number of users and transactions.

3. **Advanced security measures:** The system aims to provide advanced security measures to protect user data and prevent unauthorized access. This helps to ensure that user information is kept safe and secure.

4. **Convenience and efficiency:** The overall objective of the UTTS is to provide a convenient and efficient platform for booking and managing transportation services. By streamlining the process of booking transportation services, the UTTS aims to save users time and effort and make travel planning more accessible to all.

1.3 How it Works:

The Unified Travelling and Transport System (UTTS) works by providing a unified platform for booking and managing transportation services. Here is a brief overview of how the system works:

1. **User registration:** Users can register on the UTTS platform by providing their personal information and creating a login account.

2. **Searching for transportation services:** Users can search for transportation services based on their travel requirements, such as the date, time, and destination.

3. **Availability and schedules:** The system provides real-time information on the availability of different transportation services and their schedules, enabling users to select the most convenient and efficient transportation option.

4. **Booking and payment:** Users can book their chosen transportation services and make payments using the secure payment gateway integrated into the UTTS platform.

5. **Confirmation and ticket generation:** Once the booking and payment are confirmed, users receive a confirmation message and an e-ticket for their transportation service.

6. **Managing bookings:** Users can manage their bookings through the UTTS platform, making changes or canceling their bookings if necessary.

7. **Data management:** The UTTS employs a database management system that stores and manages data related to transportation services, ensuring efficient data storage and retrieval.

Chapter 2: LOGICAL SCHEMA

A logical schema for the Unified Travelling and Transport System (UTTS) in database management system (DBMS) would include a set of interrelated tables to store and manage data related to transportation services. The schema would be designed to capture the various entities and their relationships involved in the transportation services offered by the UTTS.
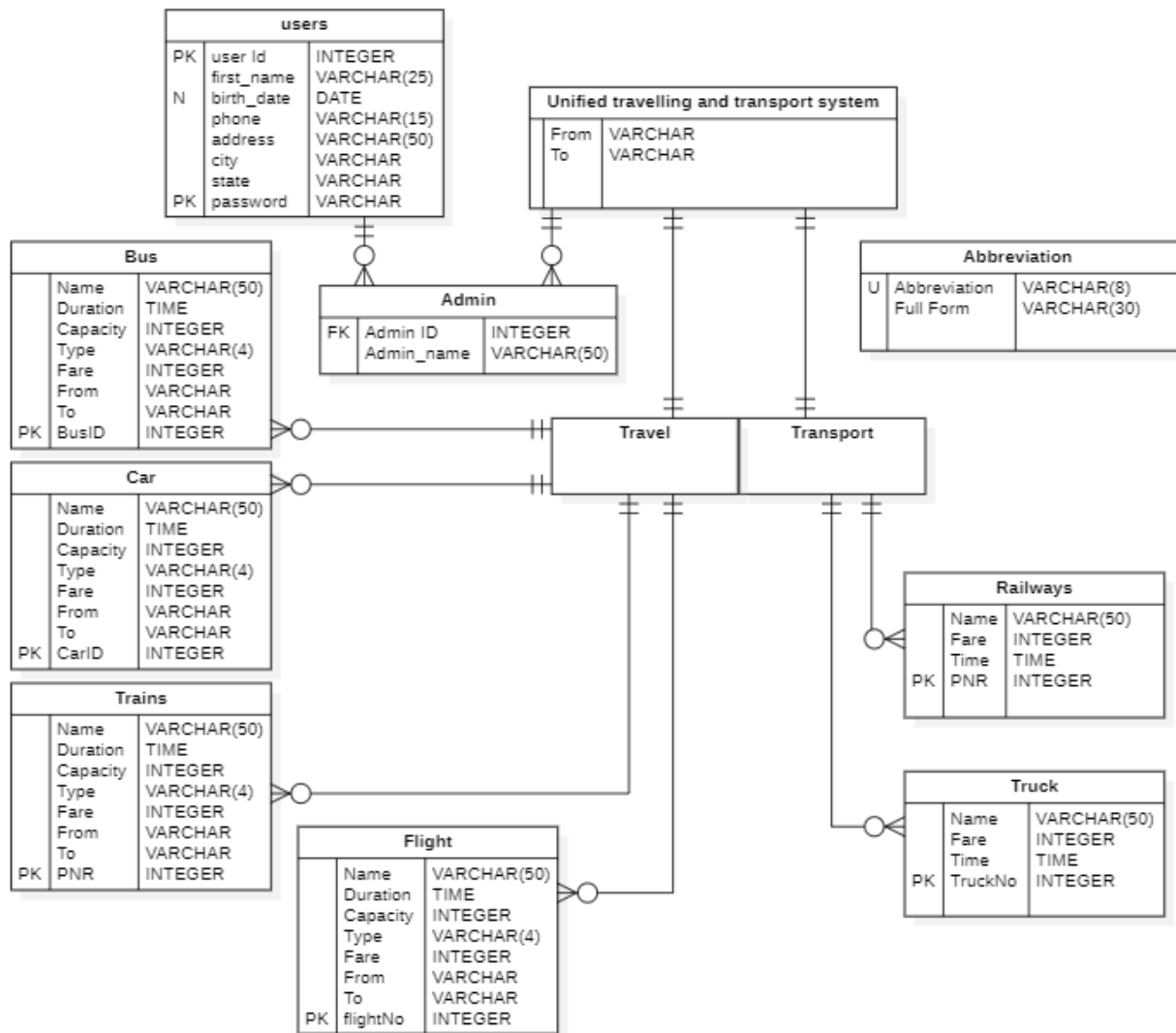
2.1 E-R Diagram:

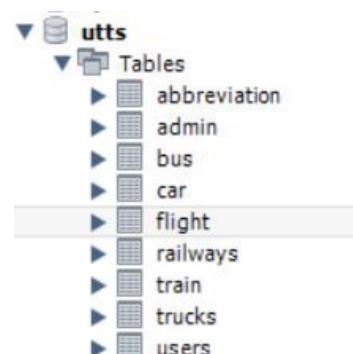*Figure 1: E-R Diagram*

2.2 Tables:

Figure 2: List Of Tables

2.3 Entities:

❖ **Abbreviation**:

This table would store information about the abbreviations used in the UTTS, such as airport codes, railway station codes, and bus station codes.

CREATE TABLE `abbreviation` (
 `abbreviation` varchar(8) DEFAULT NULL,
 `full_form` varchar(50) DEFAULT NULL,
 UNIQUE KEY `abbreviation` (`abbreviation`))

	abbreviation	full_form
▶	NANS	Non Air Conditioning Non Sleeper
	NASL	Non Air Conditioning Sleeper
	ACNS	Air Conditioning Non Sleeper
	ACSL	Air Conditioning Sleeper
	DI	Diesel
	PE	Petrol
	EV	Electric Vechile
	AC	Air conditioning
	CC	Chair coach
	GN	General Coach
	SL	Sleeper
	FC	First Class
	BU	Buisness
	EC	Econoimics

Figure 3: Abbreviation Table

❖ **Admin**

This table would store information related to the administrators of the UTTS, including their names, contact information, and login credentials.

CREATE TABLE `admin` (
 'Admin_ID' int NOT NULL,
 'Admin_name' varchar(50) DEFAULT NULL,
 PRIMARY KEY (`Admin_ID`),
 CONSTRAINT 'admin_ibfk_1' FOREIGN KEY ('Admin_ID') REFERENCES 'users' ('UserID'))

	Admin_ID	Admin_name
▶	1	harsh shrivastava
	2	gauri thakre
	3	akhil jain
	4	abhishek rajput
✱	NULL	NULL

Figure 4: Admin Table

❖ **Users**

This table would store information related to the users of the UTTS, including their names, contact information, and login credentials.

CREATE TABLE `users` (

`UserID` int NOT NULL AUTO_INCREMENT,

`first_name` varchar(25) NOT NULL,

`last_name` varchar(25) NOT NULL,

`birth_date` date DEFAULT NULL,

`phone` varchar(15) NOT NULL,

`address` varchar(50) NOT NULL,

`city` varchar(20) NOT NULL,

`state` varchar(25) NOT NULL,

`points` int DEFAULT '0',

`Password` varchar(8) NOT NULL,

PRIMARY KEY (`UserID`,`Password`),

UNIQUE KEY `Password_UNIQUE` (`Password`))

	UserID	first_name	last_name	birth_date	phone	address	city	state	points	Password
▶	1	harsh	shrivastava	2003-06-05	8109288418	Hathi Khana Road Morar	Gwalior	MP	0	20030605
	2	gauri	thakre	2003-11-30	9479675959	Hostel No. 4, MITS	Gwalior	MP	0	20031130
	3	akhil	jain	2003-08-05	7456025891	Dal Bazar	Gwalior	MP	0	20030805
	4	abhishek	rajput	2003-07-05	8109288418	Hazira	Gwalior	MP	0	20030705
	5	shahrukh	khan	1992-01-09	8827344852	Gandhi Chowk Bazar	Chatarpur	MP	0	19920109
	6	shraddha	kapoor	1985-08-30	6212418873	Juhu	Mumbai	MH	0	19850830
	7	sunny	deol	1983-12-25	6748319921	Jalianvala *Jalianvala Bagh*	Amritsar	PJ	0	19831225
	8	hema	malini	1948-10-16	9828157533	Kavi Bharu Nagar	Tiruchirapalli	TN	0	19481016
	9	jethalal	gada	2004-12-02	7852773891	Phool Bagh	Gwalior	MP	0	20041202
	10	kartik	aryan	1995-02-14	7143143143	Thatipur	Gwalior	MP	0	19950214
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Figure 5: User Table

❖ **Travel**

In the travelling part, we have divided it into four sub-tables:

- **Bus**

    This table would store information about the bus services offered by the UTTS, including their types, capacity, and availability.

    CREATE TABLE `bus` (

    `BusID` int NOT NULL AUTO_INCREMENT,

    `Name` varchar(50) DEFAULT NULL,

`FromLocation` varchar(8) DEFAULT NULL,

`ToLocation` varchar(8) DEFAULT NULL,

`Duration` time DEFAULT NULL,

`Type` varchar(4) DEFAULT NULL,

`Capacity` int DEFAULT NULL,

`Fare` int DEFAULT NULL,

PRIMARY KEY (`BusID`),

UNIQUE KEY `BusID_UNIQUE` (`BusID`))

BusID	Name	FromLocation	ToLocation	Duration	Type	Capacity	Fare
1	Bus 1	GWL	DLH	08:00:00	NANS	40	500
2	Bus 2	BHP	MUM	12:30:00	NASL	50	750
3	Bus 3	DLH	BHP	10:45:00	ACNS	30	600
4	Bus 4	MUM	GWL	14:15:00	ACSL	60	900
5	Bus 5	GWL	BHP	06:45:00	NASL	20	300
6	Bus 6	DLH	MUM	16:30:00	ACSL	70	1200
7	Bus 7	BHP	GWL	09:00:00	NANS	35	450
8	Bus 8	MUM	DLH	18:15:00	ACNS	80	1500
9	Bus 9	GWL	MUM	10:30:00	NASL	45	700
10	Bus 10	BHP	DLH	07:15:00	ACSL	25	350
11	Bus 11	BHP	GWL	09:45:00	NANS	35	450
12	Bus 12	MUM	DLH	18:45:00	ACSL	80	1500
13	Bus 13	GWL	MUM	10:15:00	NASL	45	700
14	Bus 14	BHP	DLH	07:30:00	ACNS	25	350
15	Bus 15	DLH	MUM	16:00:00	NASL	70	1200
16	Bus 16	GWL	BHP	06:30:00	NASL	20	300
17	Bus 17	MUM	GWL	14:30:00	ACSL	60	900
18	Bus 18	DLH	BHP	10:15:00	ACNS	30	600
19	Bus 19	BHP	MUM	12:00:00	NASL	50	750
20	Bus 20	GWL	DLH	08:30:00	NANS	40	500
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Figure 6: Bus Table

- **Car**

    This table would store information about the car services offered by the UTTS, including their types, capacity, and availability.

    CREATE TABLE `car` (

      `CarID` int NOT NULL AUTO_INCREMENT,

      `Name` varchar(50) DEFAULT NULL,

      `FromLocation` varchar(8) DEFAULT NULL,

      `ToLocation` varchar(8) DEFAULT NULL,

      `Duration` time DEFAULT NULL,

      `Type` varchar(4) DEFAULT NULL,

      `Capacity` int DEFAULT NULL,

      `Fare` int DEFAULT NULL,

    PRIMARY KEY (`CarID`))

CarID	Name	FromLocation	ToLocation	Duration	Type	Capacity	Fare
1	Car 1	GWL	DLH	08:00:00	DI	4	500
2	Car 2	BHP	MUM	12:00:00	PE	5	750
3	Car 3	DLH	BHP	10:00:00	DI	3	600
4	Car 4	MUM	GWL	14:00:00	EV	6	900
5	Car 5	GWL	BHP	06:00:00	DI	2	300
6	Car 6	DLH	MUM	16:00:00	EV	7	1200
7	Car 7	BHP	GWL	09:00:00	PE	3	450
8	Car 8	MUM	DLH	18:00:00	DI	8	1500
9	Car 9	GWL	MUM	10:00:00	EV	4	700
10	Car 10	BHP	DLH	07:00:00	PE	2	350
11	Car 11	BHP	GWL	09:00:00	DI	3	450
12	Car 12	MUM	DLH	18:00:00	EV	8	1500
13	Car 13	GWL	MUM	10:00:00	DI	4	700
14	Car 14	BHP	DLH	07:00:00	EV	2	350
15	Car 15	DLH	MUM	16:00:00	PE	7	1200
16	Car 16	GWL	BHP	06:00:00	DI	2	300
17	Car 17	MUM	GWL	14:00:00	EV	6	900
18	Car 18	DLH	BHP	10:00:00	PE	3	600
19	Car 19	BHP	MUM	12:00:00	DI	5	750
20	Car 20	GWL	DLH	08:00:00	EV	4	500
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Figure 7: Car Table

- **Flight**

  This table would store information about the flight services offered by the UTTS, including their types, capacity, and availability.

  CREATE TABLE `flight` (

  `flightNo` varchar(10) NOT NULL,

  `Name` varchar(50) DEFAULT NULL,

  `FromLocation` varchar(8) DEFAULT NULL,

  `ToLocation` varchar(8) DEFAULT NULL,

  `Duration` time DEFAULT NULL,

  `Type` varchar(4) DEFAULT NULL,

  `Capacity` int DEFAULT NULL,

  `Fare` int DEFAULT NULL,

  PRIMARY KEY (`flightNo`))

flightNo	Name	FromLocation	ToLocation	Duration	Type	Capacity	Fare
AF189	Flight 14	CDG	ORD	09:30:00	BU	180	6400
AF198	Flight 5	CDG	HND	12:00:00	BU	150	7200
AI101	Flight 1	DEL	LHR	08:45:00	EC	180	4500
AI202	Flight 11	BOM	DXB	03:30:00	BU	120	3200
AI820	Flight 20	DEL	DXB	03:45:00	BU	120	3300
BA249	Flight 2	LHR	JFK	06:30:00	BU	220	6500
BA735	Flight 12	LHR	SFO	11:05:00	FC	80	11800
CA977	Flight 16	PEK	LAX	11:30:00	EC	200	8400
CA983	Flight 7	PEK	JFK	13:10:00	EC	220	7800
DL412	Flight 17	ATL	LHR	07:35:00	BU	150	4900
DL68	Flight 8	ATL	CDG	08:20:00	BU	180	5200
EK406	Flight 4	SYD	DXB	13:20:00	EC	200	9500
LH107	Flight 18	FRA	JFK	08:35:00	FC	100	10100
LH430	Flight 9	FRA	ORD	09:15:00	FC	120	9800
QF1	Flight 10	SYD	LAX	13:30:00	EC	200	8900
QF15	Flight 19	SYD	JFK	20:10:00	EC	220	10700
SQ22	Flight 3	JFK	SIN	18:15:00	FC	80	13500
SQ710	Flight 13	SIN	PEK	05:35:00	EC	150	5700
UA223	Flight 6	LAX	LHR	10:55:00	FC	100	10500
UA908	Flight 15	SFO	LHR	10:25:00	FC	120	11200
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Figure 8: Flight Table

- **Train**

  This table would store information about the train services offered by the UTTS, including their types, capacity, and availability.

  CREATE TABLE `train` (

  `PNR` int NOT NULL,

  `Name` varchar(50) DEFAULT NULL,

  `FromLocation` varchar(8) DEFAULT NULL,

  `ToLocation` varchar(8) DEFAULT NULL,

  `Duration` time DEFAULT NULL,

  `Type` varchar(4) DEFAULT NULL,

  `Capacity` int DEFAULT NULL,

  `Fare` int DEFAULT NULL,

  PRIMARY KEY (`PNR`))

	PNR	Name	FromLocation	ToLocation	Duration	Type	Capacity	Fare
▶	1234	Duronto Express	DLH	GWL	10:00:00	AC	60	1700
	12345	Rajdhani Express	DLH	MUM	10:30:00	GN	50	1500
	23456	Shatabdi Express	MUM	DLH	08:45:00	CC	40	1000
	34567	Garib Rath Express	BHP	GWL	06:15:00	SL	70	500
	45678	Duronto Express	GWL	DLH	11:00:00	AC	60	1800
	56789	Jan Shatabdi Express	DLH	BHP	08:30:00	CC	50	1200
	67890	Tejas Express	BHP	MUM	07:00:00	AC	45	2000
	78901	Rajdhani Express	MUM	DLH	11:30:00	AC	50	1800
	89012	Shatabdi Express	DLH	BHP	09:15:00	CC	40	1100
	90123	Garib Rath Express	MUM	GWL	05:45:00	SL	70	450
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Figure 9: Train Table

- ❖ **Transport**

  In the transportation part, we have divided it into two sub-tables:

- **Railways**

  This table would store information about the railway services offered by the UTTS, including their types, capacity, and availability.

  CREATE TABLE `railways` (

  `PNR` int NOT NULL,

  `name` varchar(50) DEFAULT NULL,

  `fare` int DEFAULT NULL,

  `time` time DEFAULT NULL,

  PRIMARY KEY (`PNR`))

Figure 10: Railways Table

- **Truck**

  This table would store information about the truck services offered by the UTTS, including their types, capacity, and availability.

  CREATE TABLE `trucks` (
  `truckNo` int NOT NULL,
  `name` varchar(50) DEFAULT NULL,
  `fare` int DEFAULT NULL,
  `time` time DEFAULT NULL,
  PRIMARY KEY (`truckNo`))

Figure 11: Truck Table

2.3 Relationships:

The logical schema would also include relationships between the tables, such as:

1. A one-to-many relationship between the Admin table and the Bus, Car, Flight, Railways, Train, and Trucks tables, as an admin can manage multiple services.

2. A one-to-many relationship between the Users table and the Bookings table, as a user can make multiple bookings.

3. A many-to-one relationship between the Bus, Car, Flight, Railways, Train, and Trucks tables and the Bookings table, as a service can be used for multiple bookings.

4. A many-to-many relationship between the Abbreviation table and the Bus, Car, Flight, Railways, Train, and Trucks tables, as a service can have multiple stations, and a station can be used by multiple services.

Overall, the logical schema for the UTTS would be designed to capture the various entities and relationships involved in the transportation services offered by different entities, enabling efficient management and retrieval of data related to these services.

Chapter 3: APPLICATIONS

3.1 Applications of Unified Travelling and Transport System:

The Unified Travelling and Transport System (UTTS) has several applications in various transportation industries, including:

1. **Public transportation:** The UTTS can be used by public transportation providers, such as buses, trains, and metro systems, to provide real-time information on their schedules and availability. This can help to improve the efficiency of public transportation systems and enhance the overall experience for passengers.

2. **Air travel:** The UTTS can be used by airlines to provide real-time information on flight schedules, availability, and ticket prices. This can help to improve the efficiency of airline operations and enhance the overall experience for passengers.

3. **Ride-sharing services:** The UTTS can be used by ride-sharing services, such as Uber and Lyft, to provide a unified platform for booking and managing their services. This can help to streamline the booking process for users and improve the efficiency of ride-sharing services.

4. **Travel agencies:** The UTTS can be used by travel agencies to provide a unified platform for booking and managing transportation services for their clients. This can help to simplify the travel planning process for travel agencies and provide a more efficient service to their clients.

5. **Logistics and delivery services:** The UTTS can be used by logistics and delivery services to provide real-time information on the availability of their services and the status of deliveries. This can help to improve the efficiency of logistics and delivery services and enhance the overall experience for customers.

Overall, the UTTS has a wide range of applications in various transportation industries, providing a reliable and efficient platform for booking and managing transportation services.

Chapter 4: CONCLUSION

4.1 Future Scope:

The Unified Travelling and Transport System (UTTS) has immense potential for future development and expansion. Here are some potential future scope areas for the UTTS:

1. **Integration with emerging technologies:** With the advent of emerging technologies such as Artificial Intelligence (AI), Internet of Things (IoT), and Blockchain, there is an opportunity for the UTTS to integrate these technologies to improve its capabilities. For example, AI could be used to provide personalized recommendations for transportation services based on users' preferences, while Blockchain could be used to improve the security and transparency of the payment process.

2. **Expansion to new markets:** The UTTS could expand to new markets beyond transportation services, such as tourism, hospitality, and entertainment. This could provide a comprehensive platform for users to plan and book their entire travel experience, including transportation, accommodation, and activities.

3. **Collaboration with transportation providers:** The UTTS could collaborate with transportation providers to improve their services and provide a better user experience. For example, transportation providers could provide real-time data on the availability and status of their services to the UTTS, which could then be used to improve the accuracy and efficiency of the booking process.

4. **Integration with smart city initiatives:** As cities become increasingly connected and smart, the UTTS could integrate with smart city initiatives to improve transportation planning and management. For example, the UTTS could use real-time data from smart city sensors to optimize transportation routes and schedules, reduce congestion, and improve the overall efficiency of transportation systems.

Overall, the future scope for the UTTS is vast and promising, with opportunities for innovation, expansion, and collaboration with transportation providers and smart city initiatives.

4.2 Conclusion:

In conclusion, the Unified Travelling and Transport System (UTTS) is a promising platform for booking and managing transportation services, providing a unified and efficient experience for users.

The system enables users to search for and book transportation services based on their travel requirements, providing real-time information on availability, schedules, and pricing. The UTTS incorporates advanced security measures to protect user data and employs a database management system for efficient data storage and retrieval.

The UTTS has numerous applications in various transportation industries, including public transportation, air travel, ride-sharing services, travel agencies, logistics and delivery services, and more. The UTTS also has significant potential for future development and expansion, including integration with emerging technologies, expansion to new markets, collaboration with transportation providers, and integration with smart city initiatives.

Overall, the UTTS is a powerful tool for streamlining transportation planning and management, improving the efficiency and convenience of transportation services for users.

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