

# Cultural Heritage Preservation and Community Safety Monitoring System IN NEPAL

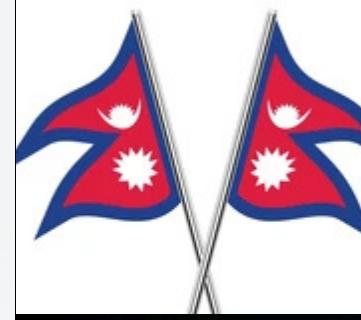
**STUDENT :**

Gaurab Khadka – 20325

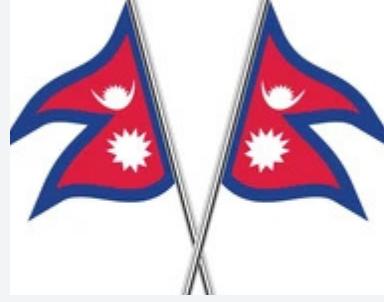
**PROFESSOR:**

DR. BHASKAR, VIDHYACHARAN

**CS457(B) - Data Modeling and  
Implementation Techniques**



# Introduction



## The Challenge: Why Nepal's Heritage Needs Protection

- **Natural Disasters:** Earthquakes, such as the 2015 Gorkha Earthquake, have caused significant damage to UNESCO World Heritage Sites like Patan Durbar Square and Bhaktapur.
- **Lack of Preservation:** Many heritage sites and artifacts are not properly documented, risking the loss of valuable historical data. Restoration efforts are often disorganized and lack sufficient funding.
- **Community Violence and Urbanization:** New urban developments are imposed on historical areas, threatening their cultural identity. Theft, vandalism, and protests are becoming more common near heritage sites.

## Purpose of the Project

This project aims to create a database system to address the challenges by:

- **Centralizing Information:** Maintaining detailed records of heritage sites, artifacts, restoration efforts, and site conditions in one location.
- **Improving Restoration Planning:** Tracking restoration projects with clear documentation of funding and progress.
- **Monitoring Community Safety:** Recording incidents like theft and vandalism to assist authorities in quick responses.
- **Encouraging Collaboration:** Providing a shared platform for researchers, local authorities, funding agencies, and the public.

## Why It Matters

- Cultural heritage is more than buildings and artifacts—it represents our history, traditions, and identity.
- Preserving heritage protects Nepal's cultural identity—it honors our ancestors and shares culture with future generations.
- It ensures heritage is passed down—future generations can experience and learn from our history.
- Cultural heritage boosts tourism—it attracts visitors, providing jobs and revenue to local communities.
- It fosters community pride and unity—protecting landmarks strengthens community bonds and shared values.

# Scope of the Project:



- **Heritage Sites Management:** The system will manage detailed data on Nepal's key heritage sites such as Pashupatinath Temple, Boudhanath Stupa, and Lumbini. Information Included: Site names, locations, significance, condition, historical importance, and ongoing restoration efforts.  
Purpose: To ensure that all heritage sites are well-documented and easily accessible for future management and restoration.
- **Artifact Cataloging:** The database will catalog Nepal's cultural treasures, including ancient sculptures, manuscripts, and religious relics. Information Included: Name, description, material, origin, condition, historical value, and restoration status.  
Purpose: To create a comprehensive digital archive of cultural artifacts to protect against theft, loss, or decay.
- **Safety Monitoring and Incident Tracking:** The system will also track community violence, theft, vandalism, and other security-related incidents around heritage sites.  
Information Included: Incident types, dates, descriptions, severity, and responses by local authorities.  
Purpose: To help authorities track and manage safety around cultural sites and act swiftly in case of emergencies.

## Who Will Use This Database?

- **Local Authorities :** They will use the database to manage heritage sites, track incidents, and allocate resources for restoration. It helps them make quicker decisions and collaborate efficiently with other departments.
- **Researchers and Historians:** Academics and experts will access detailed records for research and cultural documentation. It supports historical studies and promotes cultural knowledge locally and globally.
- **Funding Agencies:** Funding organizations will review the database to find projects that need financial support. This streamlines the process of funding allocation, ensuring resources are used efficiently.
- **The General Public:** Tourists and the public can explore information about heritage sites and learn about preservation efforts. It raises awareness and encourages participation in preserving Nepal's cultural heritage.



# Entities and Attributes

## Temples\_Heritage\_Sites

id: INT (Primary Key)  
name: VARCHAR(100)  
location: VARCHAR(100)  
condition: VARCHAR(50)  
historical\_significance: TEXT

## Restoration\_Projects

id: INT (Primary Key)  
project\_name: VARCHAR(100)  
start\_date: DATE  
end\_date: DATE (Optional)  
budget: DECIMAL(12,2)  
status: VARCHAR(50)  
site\_id: INT (Foreign Key)

## Funding\_Agencies

id: INT (Primary Key)  
name: VARCHAR(100)  
type\_of\_agency: VARCHAR(50)  
contact\_info: VARCHAR(100)

## Artifacts

id: INT (Primary Key)  
artifact\_name: VARCHAR(100)  
artifact\_type: VARCHAR(50)  
value: DECIMAL(10,2)  
location: VARCHAR(100)

## Community\_Violence\_Incidents

id: INT (Primary Key)  
site\_id: INT (Foreign Key)  
incident\_date: DATE  
incident\_time: TIME (Optional)  
type\_of\_incident: VARCHAR(100)  
severity: VARCHAR(50)  
description: TEXT  
response\_taken: TEXT

## LocalAuthorities

id: INT (Primary Key)  
name: VARCHAR(100)  
designation: VARCHAR(50)  
contact\_info: VARCHAR(100)  
site\_id: INT (Foreign Key)

## Researchers

id: INT (Primary Key)  
name: VARCHAR(100)  
field\_of\_study: VARCHAR(100)  
affiliation: VARCHAR(100)  
site\_id: INT (Foreign Key )

## Events

id: INT (Primary Key)  
event\_name: VARCHAR(100)  
event\_date: DATE  
event\_time: TIME (Optional)  
location: VARCHAR(100)  
description: TEXT  
site\_id: INT (Foreign Key)

## Tourists\_and\_Visitors

id: INT (Primary Key)  
name: VARCHAR(100)  
visit\_date: DATE  
contact\_info: VARCHAR(100)  
site\_id: INT (Foreign Key)

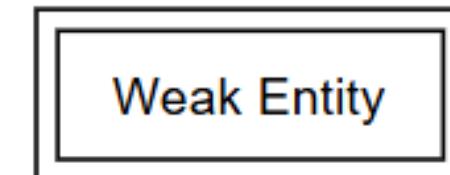
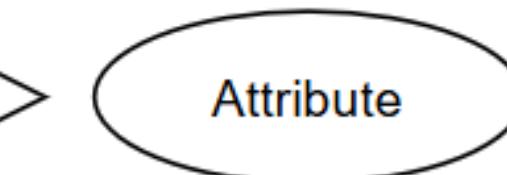
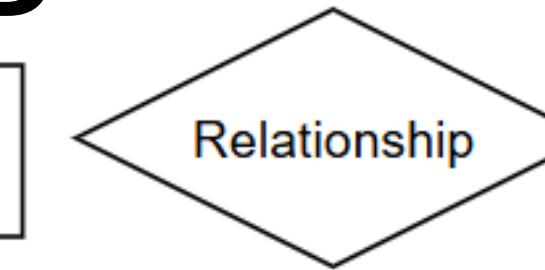
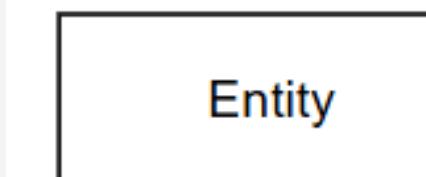
## Digital\_Archives

id: INT (Primary Key)  
file\_name: VARCHAR(100)  
file\_type: VARCHAR(50)  
upload\_date: DATE  
file\_size: DECIMAL(10,2)  
site\_id: INT (Foreign Key)

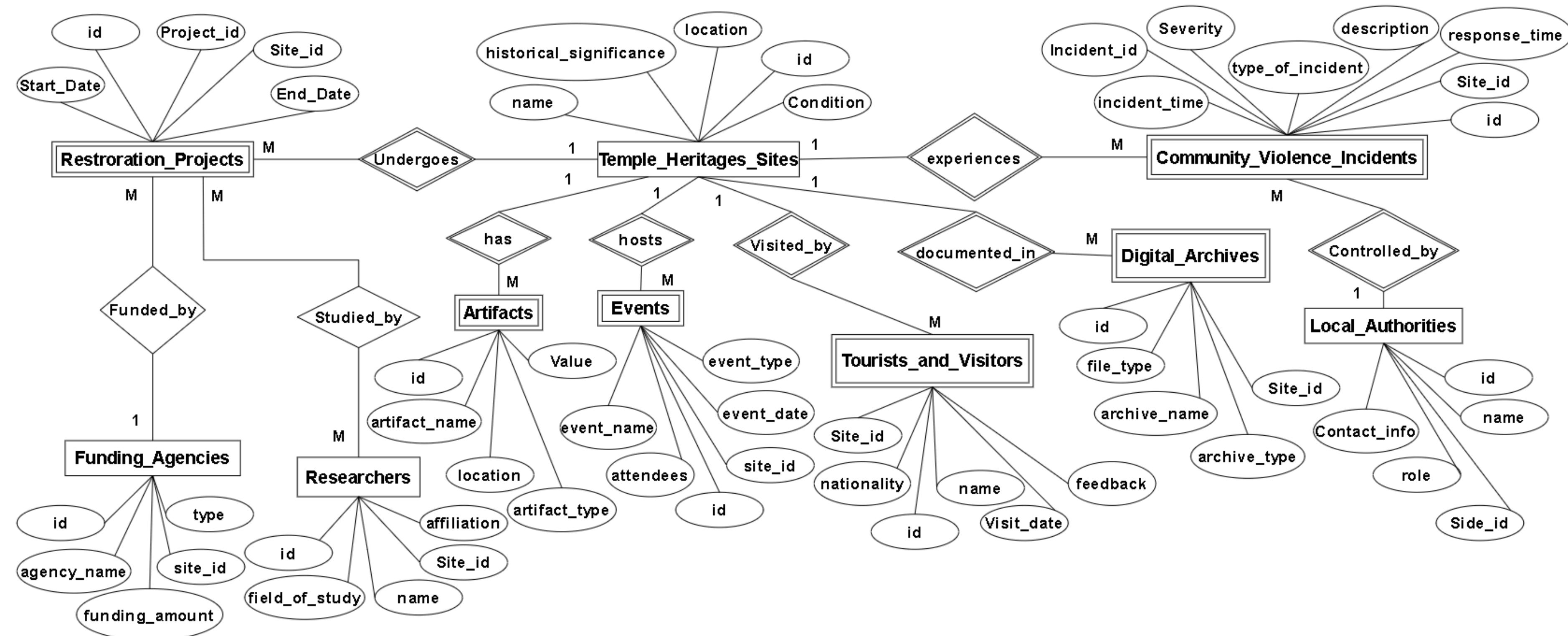
This project, "Cultural Heritage Preservation and Community Safety Monitoring System" involves entities like Temples, Artifacts, Restoration Projects, Researchers, and others, with attributes capturing essential data to preserve Nepal's cultural heritage and ensure site safety.

# ER - Diagram

## LEGEND



## Cultural Heritage Preservation and Community Safety Monitoring System



# Relationships In The Database

1. Temples\_Heritage\_Sites ↔ Artifacts (**One-to-Many Relationship**)

- Each heritage site can have multiple artifacts associated with it.

2. Temples\_Heritage\_Sites ↔ Restoration\_Projects (**One-to-Many Relationship**)

- Each heritage site may have multiple restoration projects linked to it.

3. Temples\_Heritage\_Sites ↔ Community\_Violence\_Incidents (**One-to-Many Relationship**)

- Multiple incidents (e.g., theft, vandalism) can occur near a heritage site.

4. Temples\_Heritage\_Sites ↔ Researchers (**One-to-Many Relationship**)

- Multiple researchers can be linked to a heritage site for research purposes.

5. Temples\_Heritage\_Sites ↔ Events (**One-to-Many Relationship**)

- Heritage sites can host multiple cultural or religious events.

6. Temples\_Heritage\_Sites ↔ Tourists\_and\_Visitors (**One-to-Many Relationship**)

- Heritage sites attract many tourists and visitors.

7. Temples\_Heritage\_Sites ↔ Digital\_Archives (**One-to-Many Relationship**)

- Multiple digital records are associated with each heritage site.

8. Restoration\_Projects ↔ Funding\_Agencies (**Many-to-One Relationship**)

- Multiple restoration projects can be funded by a single funding agency.

9. Community\_Violence\_Incidents ↔ Local\_Authorities (**Many-to-One Relationship**)

- Each incident is overseen by a local authority for management and resolution.

10. Restoration\_Projects ↔ Researchers (**Many-to-Many Relationship**)

- A single restoration project can involve multiple researchers.

- A researcher can work on several restoration projects across different sites.

## Notes:

- Foreign Keys are used to connect entities (e.g., site\_id in several tables linking to Temples\_Heritage\_Sites).
- Weak Entities like Artifacts and Community\_Violence\_Incidents depend on Temples\_Heritage\_Sites for identification.

# Temples\_Heritage\_Sites Table

## Create Table

```
CREATE TABLE  
Temples_Heritage_Sites (  
    id INT PRIMARY KEY,  
    name VARCHAR(100),  
    location VARCHAR(100),  
    `condition` VARCHAR(50),  
    historical_significance TEXT );
```

## Inserting data:

```
INSERT INTO Temples_Heritage_Sites (id, name, location, `condition`, historical_significance) VALUES  
(1, 'Pashupatinath Temple', 'Kathmandu Valley, Nepal', 'Excellent', 'Pashupatinath is one of the holiest temples for Hindus, dedicated to Lord Shiva, and a UNESCO World Heritage Site.'),  
(2, 'Boudhanath Stupa', 'Kathmandu, Nepal', 'Good', 'Boudhanath is a UNESCO World Heritage Site and one of the largest stupas in Nepal, a major center for Tibetan Buddhism.'),  
(3, 'Swayambhunath Stupa', 'Kathmandu, Nepal', 'Fair', 'Known as the Monkey Temple, this stupa offers panoramic views of Kathmandu Valley and is an important Buddhist pilgrimage site.'),  
(4, 'Lumbini', 'Lumbini, Nepal', 'Good', 'Lumbini is the birthplace of Siddhartha Gautama (Buddha) and an essential Buddhist pilgrimage site.'),  
(5, 'Changu Narayan Temple', 'Bhaktapur District, Nepal', 'Excellent', 'Changu Narayan is one of the oldest Hindu temples still in use, dedicated to Lord Vishnu, and a UNESCO World Heritage Site.'),  
(6, 'Muktinath Temple', 'Mustang District, Nepal', 'Good', 'Muktinath is a sacred temple for both Hindus and Buddhists, located in the Annapurna region and a popular pilgrimage site.'),
```

## Retrieve Table: Select \* from Temples\_Heritage\_Sites;

id	name	location	condition	historical_significance
1	Pashupatinath Temple	Kathmandu Valley, Nepal	Excellent	Pashupatinath is one of the holiest temples for Hindus, dedicated to Lord Shiva, and a UNESCO World Heritage Site.
2	Boudhanath Stupa	Kathmandu, Nepal	Good	Boudhanath is a UNESCO World Heritage Site and one of the largest stupas in Nepal, a major center for Tibetan Buddhism.
3	Swayambhunath Stupa	Kathmandu, Nepal	Fair	Known as the Monkey Temple, this stupa offers panoramic views of Kathmandu Valley and is an important Buddhist pilgrimage site.
4	Lumbini	Lumbini, Nepal	Good	Lumbini is the birthplace of Siddhartha Gautama (Buddha) and an essential Buddhist pilgrimage site.
5	Changu Narayan Temple	Bhaktapur District, Nepal	Excellent	Changu Narayan is one of the oldest Hindu temples still in use, dedicated to Lord Vishnu, and a UNESCO World Heritage Site.
6	Muktinath Temple	Mustang District, Nepal	Good	Muktinath is a sacred temple for both Hindus and Buddhists, located in the Annapurna region and a popular pilgrimage site.
7	Kailashnath Temple	Sankhu, Nepal	Good	Kailashnath is home to one of the tallest statues of Lord Shiva in the world.
8	Patan Durbar Square	Lalitpur, Nepal	Excellent	Patan Durbar Square is a UNESCO World Heritage site, rich in ancient Hindu temples and palaces, including the famous Hiranya Varna Mahavihar.
9	Dakshinkali Temple	Kathmandu Valley, Nepal	Good	Dakshinkali Temple is dedicated to the goddess Kali and is known for its animal sacrifices during festivals.
10	Rani Pokhari Temple	Kathmandu, Nepal	Fair	Rani Pokhari is a historical pond and temple built by King Pratap Malla in the 17th century.
11	Janaki Temple	Janakpur, Nepal	Excellent	Janaki Temple is dedicated to Goddess Sita, located in her birthplace, and an important pilgrimage site for Hindus.
12	Bhadrakali Temple	Kathmandu Valley, Nepal	Good	Bhadrakali Temple is dedicated to the goddess Bhadrakali, with historical and religious importance in Hinduism.
13	Gosaikunda Temple	Rasuwa District, Nepal	Good	Gosaikunda is a sacred alpine lake and temple, dedicated to Lord Shiva, located in Langtang National Park.
14	Taleju Temple	Kathmandu Durbar Squ...	Excellent	Taleju Temple is a significant Hindu temple dedicated to Goddess Taleju, located in the Kathmandu Durbar Square.
15	Rangjung Gonkhar Mon...	Lho, Nepal	Good	Rangjung Gonkhar is a Tibetan Buddhist monastery known for its serene location and cultural significance.

# Artifacts Table

## Create Table

```
CREATE TABLE Artifacts (  
    id INT PRIMARY KEY,  
    artifact_name VARCHAR(100),  
    artifact_type VARCHAR(50),  
    value DECIMAL(10,2),  
    location VARCHAR(100));
```

## Inserting Data:

```
INSERT INTO Artifacts (id, artifact_name, artifact_type, value, location) VALUES  
(1, 'Statue of Pashupati', 'Sculpture', 50000.00, 'Pashupatinath Temple'),  
(2, 'Buddha Footprint', 'Stone Artifact', 10000.00, 'Lumbini'),  
(3, 'Ancient Manuscripts', 'Document', 3000.00, 'Boudhanath Stupa'),  
(4, 'Swayambhunath Idol', 'Sculpture', 20000.00, 'Swayambhunath Temple'),  
(5, 'Bhaktapur Mural', 'Painting', 15000.00, 'Bhaktapur Durbar Square'),  
(6, 'Kailashnath Bronze Statue', 'Sculpture', 25000.00, 'Kailashnath Temple'),  
(7, 'Stone Carvings', 'Stone Art', 8000.00, 'Muktinath Temple'),  
(8, 'Silver Ritual Bell', 'Metalwork', 5000.00, 'Changu Narayan Temple'),  
(9, 'Rara Lake Ritual Vessel', 'Artifact', 12000.00, 'Rara Lake'),  
(10, 'Ancient Coins', 'Coins', 7000.00, 'Kathmandu Durbar Square'),  
(11, 'Golden Prayer Wheels', 'Metalwork', 22000.00, 'Patan Durbar Square'),  
(12, 'Carved Wooden Door', 'Woodwork', 10000.00, 'Patan Durbar Square'),  
(13, 'Tibetan Thangka Painting', 'Painting', 18000.00, 'Rangjung Gonkhar Monastery'),  
(14, 'Gosaikunda Water Pot', 'Ceramic', 1500.00, 'Gosaikunda Lake'),  
(15, 'Stone Tablet', 'Stone', 12000.00, 'Pokhara Valley');
```

## Retrieve Table: select \* from Artifacts;

<u>id</u>	<u>artifact_name</u>	<u>artifact_type</u>	<u>value</u>	<u>location</u>
1	Statue of Pashupati	Sculpture	50000.00	Pashupatinath Temple
2	Buddha Footprint	Stone Artifact	10000.00	Lumbini
3	Ancient Manuscripts	Document	3000.00	Boudhanath Stupa
4	Swayambhunath Idol	Sculpture	20000.00	Swayambhunath Temple
5	Bhaktapur Mural	Painting	15000.00	Bhaktapur Durbar Square
6	Kailashnath Bronze Statue	Sculpture	25000.00	Kailashnath Temple
7	Stone Carvings	Stone Art	8000.00	Muktinath Temple
8	Silver Ritual Bell	Metalwork	5000.00	Changu Narayan Temple
9	Rara Lake Ritual Vessel	Artifact	12000.00	Rara Lake
10	Ancient Coins	Coins	7000.00	Kathmandu Durbar Square
11	Golden Prayer Wheels	Metalwork	22000.00	Patan Durbar Square
12	Carved Wooden Door	Woodwork	10000.00	Patan Durbar Square
13	Tibetan Thangka Painting	Painting	18000.00	Rangjung Gonkhar Monastery
14	Gosaikunda Water Pot	Ceramic	1500.00	Gosaikunda Lake
15	Stone Tablet	Stone	12000.00	Pokhara Valley
NULL	NULL	NULL	NULL	NULL

# Restoration\_Projects

## Create Table

```
CREATE TABLE Restoration_Projects (
    id INT PRIMARY KEY,
    project_name VARCHAR(100) NOT NULL,
    start_date DATE NOT NULL,
    end_date DATE,
    budget DECIMAL(12, 2) NOT NULL,
    status VARCHAR(50) NOT NULL,
    site_id INT NOT NULL,
    FOREIGN KEY (site_id)
    REFERENCES Temples_Heritage_Sites(id));
```

## Inserting Data:

```
INSERT INTO Restoration_Projects (id, project_name
(1, 'Pashupatinath Renovation 2023', '2023-01-10',
(2, 'Boudhanath Stupa Preservation', '2022-05-01',
(3, 'Swayambhunath Stupa Repair', '2023-02-15', NU
(4, 'Lumbini Peace Garden Expansion', '2023-06-01'
(5, 'Changu Narayan Earthquake Repairs', '2021-03-
(6, 'Muktinath Accessibility Improvement', '2023-0
(7, 'Kailashnath Lighting Project', '2022-08-15'
(8, 'Patan Durbar Square Restoration', '2022-01-01
(9, 'Dakshinkali Infrastructure Upgrade', '2023-03-
(10, 'Janaki Temple Painting', '2021-11-01
(11, 'Gosaikunda Pathway Repairs', '2023-05-01
(12, 'Taleju Temple Security Enhancement', '2022-09-
(13, 'Rani Pokhari Fencing Project', '2022-12-01
(14, 'Bhadrakali Temple Structural Repairs', '2023-01-
(15, 'Rangjung Gonkhar Monastery Revamp', '2023-07-01
```

## Retrieve Table : select \* from Restoration\_Projects;

<u>id</u>	<u>project_name</u>	<u>start_date</u>	<u>end_date</u>	<u>budget</u>	<u>status</u>	<u>site_id</u>
1	Pashupatinath Renovation 2023	2023-01-10	2023-08-15	500000.00	Completed	1
2	Boudhanath Stupa Preservation	2022-05-01	2022-12-30	300000.00	Completed	2
3	Swayambhunath Stupa Repair	2023-02-15	NULL	200000.00	Ongoing	3
4	Lumbini Peace Garden Expansion	2023-06-01	2023-11-30	700000.00	Completed	4
5	Changu Narayan Earthquake Repairs	2021-03-20	2021-10-10	450000.00	Completed	5
6	Muktinath Accessibility Improvement	2023-04-01	NULL	250000.00	Ongoing	6
7	Kailashnath Lighting Project	2022-08-15	2023-02-01	150000.00	Completed	7
8	Patan Durbar Square Restoration	2022-01-01	2022-12-01	600000.00	Completed	8
9	Dakshinkali Infrastructure Upgrade	2023-03-01	NULL	180000.00	Ongoing	9
10	Janaki Temple Painting	2021-11-01	2022-04-30	120000.00	Completed	11
11	Gosaikunda Pathway Repairs	2023-05-01	NULL	140000.00	Ongoing	13
12	Taleju Temple Security Enhancement	2022-09-01	2023-03-15	110000.00	Completed	14
13	Rani Pokhari Fencing Project	2022-12-01	2023-06-30	80000.00	Completed	10
14	Bhadrakali Temple Structural Repairs	2023-01-15	NULL	130000.00	Ongoing	12
15	Rangjung Gonkhar Monastery Revamp	2023-07-01	NULL	160000.00	Ongoing	15

# Researchers

## Create Table

```
CREATE TABLE Researchers (
    id INT PRIMARY KEY,
    name VARCHAR(100),
    field_of_study VARCHAR(100),
    affiliation VARCHAR(100),
    site_id INT,
    FOREIGN KEY (site_id) REFERENCES
    Temples_Heritage_Sites(id));
```

## Inserting data

```
INSERT INTO Researchers (id, name, field_of_study, affiliation, site_id)
VALUES
(1, 'Dr. Rajesh Shrestha', 'Archaeology', 'Tribhuvan University', 1),
(2, 'Dr. Sita Khadka', 'Cultural Preservation', 'Nepal National Museum', 2),
(3, 'Dr. Hari Kumar', 'Art History', 'Lumbini Buddhist Center', 4),
(4, 'Dr. Shyam Bhandari', 'Architecture', 'Kathmandu University', 3),
(5, 'Dr. Nirmala Tamang', 'History', 'Central Department of History', 5),
(6, 'Dr. Maya Lama', 'Cultural Anthropology', 'Nepal Academy of Science and Technology', 6),
(7, 'Dr. Jaya Shrestha', 'Architecture', 'International Center for Conservation', 7),
(8, 'Dr. Deepak Gurung', 'Archaeology', 'Kathmandu University', 8),
(9, 'Dr. Pradeep Bhattarai', 'Religious Studies', 'Pokhara University', 9),
(10, 'Dr. Ramesh Kharel', 'Anthropology', 'Patan Institute of Culture', 10),
(11, 'Dr. Manju Giri', 'History', 'Tribhuvan University', 11),
(12, 'Dr. Laxmi Sharma', 'Conservation', 'National Conservation Department', 12),
(13, 'Dr. Pramod Thapa', 'Buddhist Studies', 'Lumbini University', 13),
(14, 'Dr. Niranjan Sarki', 'Geography', 'Central Department of Geography', 14),
(15, 'Dr. Ratna Thapa', 'Cultural Studies', 'Nepal Academy of Arts', 15);
```

## Retrieve Table: select \* from Researchers;

id	name	field_of_study	affiliation	site_id
1	Dr. Rajesh Shrestha	Archaeology	Tribhuvan University	1
2	Dr. Sita Khadka	Cultural Preservation	Nepal National Museum	2
3	Dr. Hari Kumar	Art History	Lumbini Buddhist Center	4
4	Dr. Shyam Bhandari	Architecture	Kathmandu University	3
5	Dr. Nirmala Tamang	History	Central Department of History	5
6	Dr. Maya Lama	Cultural Anthropology	Nepal Academy of Science and Technology	6
7	Dr. Jaya Shrestha	Architecture	International Center for Conservation	7
8	Dr. Deepak Gurung	Archaeology	Kathmandu University	8
9	Dr. Pradeep Bhattarai	Religious Studies	Pokhara University	9
10	Dr. Ramesh Kharel	Anthropology	Patan Institute of Culture	10
11	Dr. Manju Giri	History	Tribhuvan University	11
12	Dr. Laxmi Sharma	Conservation	National Conservation Department	12
13	Dr. Pramod Thapa	Buddhist Studies	Lumbini University	13
14	Dr. Niranjan Sarki	Geography	Central Department of Geography	14
15	Dr. Ratna Thapa	Cultural Studies	Nepal Academy of Arts	15
NULL	NULL	NULL	NULL	NULL

# Community\_Violence\_Incidents Table

**Retrieve table :** select \* From Community\_Violence\_Incidents;

id	site_id	incident_date	incident_time	type_of_incident	severity	description	response_taken
1	1	2023-01-15	14:30:00	Theft	Medium	A valuable idol was stolen from Pashupatinath Temple.	Police investigation launched, CCTV footage reviewed.
2	2	2023-03-12	10:00:00	Protest	Low	A peaceful protest occurred near Boudhanath regarding environmental concerns.	Authorities monitored the situation; no arrests were made.
3	3	2023-05-20	18:00:00	Vandalism	High	Graffiti was found on the main walls of Swayambhunath Stupa.	Walls repainted; security increased in the area.
4	5	2022-11-25	20:00:00	Arson	Critical	A small fire was intentionally set near Chang Narayan Temple.	Fire extinguished quickly; suspects detained.
5	4	2023-02-17	11:00:00	Protest	Medium	Religious tensions led to a protest near Lumbini.	Security forces deployed to manage the crowd.
6	9	2023-04-05	16:45:00	Assault	High	A tourist was assaulted near Dakshinkali Temple.	Victim treated; police arrested the suspect.
7	11	2023-07-10	09:30:00	Pickpocketing	Low	Multiple cases of pickpocketing were reported near Janaki Temple.	Police presence increased during peak hours.
8	8	2023-06-15	13:00:00	Theft	Medium	Artifacts were reported missing from a museum at Patan Durbar Square.	Investigation ongoing; museum inventory audited.
9	6	2022-12-25	22:00:00	Civil Unrest	Critical	Local political tensions led to violent clashes near Muktinath Temple.	Curfew imposed; additional police sent to the area.
10	10	2023-09-01	14:15:00	Protest	Low	A small protest about maintenance delays occurred near Rani Pokhari.	Issue addressed by local authorities.
11	14	2023-08-20	17:00:00	Vandalism	Medium	Unauthorized constructions damaged parts of Taleju Temple.	Construction halted; penalties imposed on violators.
12	13	2023-10-12	12:00:00	Theft	High	A group of thieves attempted to steal donations at Gosaikunda Temple.	Suspects detained by local police.
13	7	2023-03-18	15:30:00	Robbery	Critical	An armed robbery occurred at Kailashnath Temple, targeting donation boxes.	Robbers arrested; security strengthened.
14	12	2023-02-01	20:00:00	Assault	High	A devotee was assaulted during a night prayer session at Bhadrakali Temple.	Victim hospitalized; investigation ongoing.
15	15	2023-09-05	16:00:00	Vandalism	Low	Small carvings on the walls of Rangjung Gonkhar Monastery were defaced.	Wall restored; area under increased surveillance.
NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

## Create Table

```
CREATE TABLE Community_Violence_Incidents (
    id INT PRIMARY KEY,
    site_id INT NOT NULL,
    incident_date DATE NOT NULL,
    incident_time TIME,
    type_of_incident VARCHAR(100) NOT NULL,
    severity VARCHAR(50) NOT NULL,
    description TEXT,
    response_taken TEXT,
    FOREIGN KEY (site_id)
    REFERENCES Temples_Heritage_Sites(id);
```

## Inserting Data

```
(id, site_id, incident_date, incident_time, type_of_incident, severity, description, response_taken)
VALUES
(1, 1, '2023-01-15', '14:30:00', 'Theft', 'Medium', 'A valuable idol was stolen from Pashupatinath Temple.', 'Police investigation launched, CCTV footage reviewed.'),
(2, 2, '2023-03-12', '10:00:00', 'Protest', 'Low', 'A peaceful protest occurred near Boudhanath regarding environmental concerns.', 'Authorities monitored the situation; no arrests were made.'),
(3, 3, '2023-05-20', '18:00:00', 'Vandalism', 'High', 'Graffiti was found on the main walls of Swayambhunath Stupa.', 'Walls repainted; security increased in the area.'),
(4, 5, '2022-11-25', '20:00:00', 'Arson', 'Critical', 'A small fire was intentionally set near Chang Narayan Temple.', 'Fire extinguished quickly; suspects detained.'),
(5, 4, '2023-02-17', '11:00:00', 'Protest', 'Medium', 'Religious tensions led to a protest near Lumbini.', 'Security forces deployed to manage the crowd.'),
(6, 9, '2023-04-05', '16:45:00', 'Assault', 'High', 'A tourist was assaulted near Dakshinkali Temple.', 'Victim treated; police arrested the suspect.'),
(7, 11, '2023-07-10', '09:30:00', 'Pickpocketing', 'Low', 'Multiple cases of pickpocketing were reported near Janaki Temple.', 'Police presence increased during peak hours.'),
(8, 8, '2023-06-15', '13:00:00', 'Theft', 'Medium', 'Artifacts were reported missing from a museum at Patan Durbar Square.', 'Investigation ongoing; museum inventory audited.'),
(9, 6, '2022-12-25', '22:00:00', 'Civil Unrest', 'Critical', 'Local political tensions led to violent clashes near Muktinath Temple.', 'Curfew imposed; additional police sent to the area.'),
(10, 10, '2023-09-01', '14:15:00', 'Protest', 'Low', 'A small protest about maintenance delays occurred near Rani Pokhari.', 'Issue addressed by local authorities.'),
(11, 14, '2023-08-20', '17:00:00', 'Vandalism', 'Medium', 'Unauthorized constructions damaged parts of Taleju Temple.', 'Construction halted; penalties imposed on violators.'),
```

# Local Authorities Table

## Create Table

```
CREATE TABLE Local_Authorities (
    id INT PRIMARY KEY,
    name VARCHAR(100),
    role VARCHAR(50),
    contact_info VARCHAR(100),
    site_id INT,
    FOREIGN KEY (site_id)
```

## REFERENCES Temples\_Heritage\_Sites(id)

# Inserting data:

```
INSERT INTO Local_Authorities (id, name, role, email)
VALUES
(1, 'Arjun Rai', 'Chief Security Officer', 'arjun.ra@heritage.gov.np'),
(2, 'Sita Koirala', 'Restoration Coordinator', 'sita.koirala@heritage.gov.np'),
(3, 'Pradeep Sharma', 'Cultural Affairs Officer', 'pradeep.sharma@heritage.gov.np'),
(4, 'Hari Bhattarai', 'Police Inspector', 'hari.bhattarai@police.gov.np'),
(5, 'Nirmala Joshi', 'Heritage Conservation Specialist', 'nirmala.joshi@heritage.gov.np'),
(6, 'Bishal Shrestha', 'Site Manager', 'bishal.shrestha@site-management.org'),
(7, 'Ramesh Subedi', 'Security Officer', 'ramesh.subedi@security.gov.np'),
(8, 'Rina Gurung', 'Heritage Site Custodian', 'rina.gurung@site-custodianship.org'),
(9, 'Deepak Thapa', 'Law Enforcement Officer', 'deepak.thapa@law-enforcement.org'),
(10, 'Raju Bhandari', 'Cultural Preservation Officer', 'raju.bhandari@cultural-preservation.org'),
(11, 'Manju Sharma', 'Historical Research Supervisor', 'manju.sharma@historical-research.org'),
(12, 'Jaya Thapa', 'Security Advisor', 'jaya.thapa@security-advisory.org'),
(13, 'Suman Rijal', 'Project Manager', 'suman.rijal@project-management.org');
```

**Retrieve Table:** select \* from Local\_Authorities

<u><a href="#">id</a></u>	<u><a href="#">name</a></u>	<u><a href="#">role</a></u>	<u><a href="#">contact_info</a></u>	<u><a href="#">site_id</a></u>
1	Arjun Rai	Chief Security Officer	arjun.rai@kathmandu.gov.np	1
2	Sita Koirala	Restoration Coordinator	sita.koirala@bhaktapur.gov.np	2
3	Pradeep Sharma	Cultural Affairs Officer	pradeep.sharma@pokhara.gov.np	3
4	Hari Bhattarai	Police Inspector	hari.bhattarai@lumbini.gov.np	4
5	Nirmala Joshi	Heritage Conservation Specialist	nirmala.joshi@kathmandu.gov.np	5
6	Bishal Shrestha	Site Manager	bishal.shrestha@patan.gov.np	6
7	Ramesh Subedi	Security Officer	ramesh.subedi@kathmandu.gov.np	7
8	Rina Gurung	Heritage Site Custodian	rina.gurung@bhaktapur.gov.np	8
9	Deepak Thapa	Law Enforcement Officer	deepak.thapa@mustang.gov.np	9
10	Raju Bhandari	Cultural Preservation Officer	raju.bhandari@patan.gov.np	10
11	Manju Sharma	Historical Research Supervisor	manju.sharma@bhaktapur.gov.np	11
12	Jaya Thapa	Security Advisor	jaya.thapa@pokhara.gov.np	12
13	Suman Rijal	Project Manager	suman.rijal@rasuwa.gov.np	13
14	Anil Khadka	District Officer	anil.khadka@rasuwa.gov.np	14
15	Laxmi Rai	Cultural Safety Coordinator	laxmi.rai@lalitpur.gov.np	15

# Funding\_Agencies Table

## Create Table

```
CREATE TABLE Funding_Agencies (
    id INT PRIMARY KEY,
    agency_name VARCHAR(100),
    type VARCHAR(50),
    funding_amount DECIMAL(10, 2),
    site_id INT,
    FOREIGN KEY (site_id)
REFERENCES Temples_Heritage_Sites(id));
```

## Inserting Data:

```
INSERT INTO Funding_Agencies (id, agency_name, type,
funding_amount, site_id)
VALUES
(1, 'Nepal Government', 'Government', 500000.00, 1),
(2, 'UNESCO', 'International Organization', 300000.00, 2),
(3, 'World Bank', 'International Organization', 200000.00, 3),
(4, 'Asian Development Bank', 'International Organization',
100000.00, 4),
(5, 'Korea Aid', 'NGO', 150000.00, 5),
(6, 'Nepal Tourism Board', 'Government', 250000.00, 6),
(7, 'Ford Foundation', 'NGO', 80000.00, 7),
(8, 'Save the Heritage Fund', 'Private Organization', 120000.00, 8),
(9, 'European Union', 'International Organization', 500000.00, 9),
(10, 'USAID', 'International Organization', 350000.00, 10),
(11, 'UNDP', 'International Organization', 400000.00, 11),
(12, 'Global Heritage Fund', 'Private Organization', 70000.00, 12),
(13, 'Nepal Archaeological Society', 'NGO', 60000.00, 13),
(14, 'The World Monuments Fund', 'International Organization',
300000.00, 14),
(15, 'Swiss Embassy', 'Government', 100000.00, 15);
```

## Retrieve Table: select \* from Funding\_Agencies;

<b>id</b>	<b>agency_name</b>	<b>type</b>	<b>funding_amount</b>	<b>site_id</b>
1	Nepal Government	Government	500000.00	1
2	UNESCO	International Organization	300000.00	2
3	World Bank	International Organization	200000.00	3
4	Asian Development Bank	International Organization	100000.00	4
5	Korea Aid	NGO	150000.00	5
6	Nepal Tourism Board	Government	250000.00	6
7	Ford Foundation	NGO	80000.00	7
8	Save the Heritage Fund	Private Organization	120000.00	8
9	European Union	International Organization	500000.00	9
10	USAID	International Organization	350000.00	10
11	UNDP	International Organization	400000.00	11
12	Global Heritage Fund	Private Organization	70000.00	12
13	Nepal Archaeological So...	NGO	60000.00	13
14	The World Monuments ...	International Organization	300000.00	14
15	Swiss Embassy	Government	100000.00	15
HULL	HULL	HULL	HULL	HULL

# Events Table

## Create table:

```
CREATE TABLE Events (
    id INT PRIMARY KEY,
    event_name VARCHAR(100),
    event_type VARCHAR(50),
    event_date DATE,
    attendees INT,
    site_id INT,
    FOREIGN KEY (site_id)
    REFERENCES Temples_Heritage_Sites(id));
```

## Inserting Data:

```
INSERT INTO Events (id, event_name, event_type,
event_date, attendees, site_id) VALUES
(1, 'Shivaratri Festival', 'Cultural', '2023-02-27',
10000, 1),
(2, 'Buddha Jayanti', 'Religious', '2023-04-15', 5000,
2),
(3, 'Swayambhunath New Year Celebration', 'Cultural',
'2023-01-01', 3000, 3),
(4, 'Lumbini Peace March', 'Religious', '2023-05-06',
4000, 4),
(5, 'Bhaktapur Durbar Square Anniversary', 'Cultural',
'2023-06-10', 2000, 5),
(6, 'Kathmandu Durbar Square Annual Festival',
'Cultural', '2023-07-15', 3500, 6),
(7, 'Rara Lake Clean-Up Event', 'Environmental',
'2023-08-20', 1500, 7),
(8, 'Changu Narayan Cultural Program', 'Cultural',
'2023-09-01', 2500, 8),
(9, 'Muktinath Pilgrimage Walk', 'Religious',
'2023-04-10', 6000, 9),
(10, 'Kailashnath Temple Dedication', 'Religious',
'2023-05-05', 1000, 10),
(11, 'Patan Durbar Square Heritage Exhibition',
'Cultural', '2023-06-15', 3000, 11),
(12, 'Nagarkot Sunrise View', 'Tourist Event',
'2023-07-30', 500, 12),
(13, 'Pokhara Valley Boat Race', 'Cultural',
'2023-09-10', 1200, 13),
(14, 'Gosaikunda Lake Pilgrimage', 'Religious',
'2023-08-05', 2500, 14),
(15, 'Rangjung Gonkhar Monastery Prayer Event',
'Religious', '2023-06-25', 1500, 15);
```

## Retrieve Table: select \* from Events;

<b>id</b>	<b>event_name</b>	<b>event_type</b>	<b>event_date</b>	<b>attendees</b>	<b>site_id</b>
1	Shivaratri Festival	Cultural	2023-02-27	10000	1
2	Buddha Jayanti	Religious	2023-04-15	5000	2
3	Swayambhunath New Year Celebration	Cultural	2023-01-01	3000	3
4	Lumbini Peace March	Religious	2023-05-06	4000	4
5	Bhaktapur Durbar Square Anniversary	Cultural	2023-06-10	2000	5
6	Kathmandu Durbar Square Annual Festival	Cultural	2023-07-15	3500	6
7	Rara Lake Clean-Up Event	Environmental	2023-08-20	1500	7
8	Changu Narayan Cultural Program	Cultural	2023-09-01	2500	8
9	Muktinath Pilgrimage Walk	Religious	2023-04-10	6000	9
10	Kailashnath Temple Dedication	Religious	2023-05-05	1000	10
11	Patan Durbar Square Heritage Exhibition	Cultural	2023-06-15	3000	11
12	Nagarkot Sunrise View	Tourist Event	2023-07-30	500	12
13	Pokhara Valley Boat Race	Cultural	2023-09-10	1200	13
14	Gosaikunda Lake Pilgrimage	Religious	2023-08-05	2500	14
15	Rangjung Gonkhar Monastery Prayer Event	Religious	2023-06-25	1500	15
<b>NULL</b>	<b>NULL</b>	<b>NULL</b>	<b>NULL</b>	<b>NULL</b>	<b>NULL</b>

# Tourists\_and\_Visitors Table

## Create Table

```
CREATE TABLE Tourists_and_Visitors (
    id INT PRIMARY KEY,
    name VARCHAR(100),
    nationality VARCHAR(50),
    visit_date DATE,
    feedback TEXT,
    site_id INT,
    FOREIGN KEY (site_id)
    REFERENCES Temples_Heritage_Sites(id));
```

## Inserting Data

```
INSERT INTO Tourists_and_Visitors (id, name,
nationality, visit_date, feedback, site_id) VALUES
(1, 'John Smith', 'USA', '2023-05-01', 'Incredible
experience, very informative', 1),
(2, 'Maria Fernandez', 'Spain', '2023-04-10',
'Beautiful architecture, loved the culture', 2),
(3, 'Li Wei', 'China', '2023-07-21', 'Very peaceful, but
crowded', 3),
(4, 'Sofia Petrova', 'Russia', '2023-06-19', 'Interesting
history, would recommend', 4),
(5, 'Ahmed Khan', 'Pakistan', '2023-08-05', 'A serene
place, great for meditation', 5),
(6, 'Yuki Tanaka', 'Japan', '2023-09-12', 'Loved the view, but the walk was tiring', 6),
(7, 'Liam O'Connor', 'Ireland', '2023-07-16', 'Amazing temple, a must-see for anyone in Nepal', 7),
(8, 'Hannah Mitchell', 'UK', '2023-05-24', 'A great cultural experience', 8),
(9, 'Felipe Garcia', 'Brazil', '2023-08-02', 'Great place for history lovers', 9),
(10, 'Olivia Jensen', 'Denmark', '2023-06-18', 'The site was a bit commercialized but still beautiful', 10),
(11, 'Haruto Nakamura', 'Japan', '2023-09-30', 'Such a calm and spiritual atmosphere', 11),
(12, 'Eva Muller', 'Germany', '2023-05-09', 'Lovely temples and a rich history', 12),
(13, 'David White', 'USA', '2023-08-13', 'The place was very busy with tourists', 13),
(14, 'Olga Ivanova', 'Russia', '2023-07-22', 'Great views and good food nearby', 14),
(15, 'Nina Schmidt', 'Germany', '2023-09-10', 'Very well preserved and informative', 15)
```

**Retrieve table:** select \* from Tourists\_and\_Visitors;

<b>id</b>	<b>name</b>	<b>nationality</b>	<b>visit_date</b>	<b>feedback</b>	<b>site_id</b>
1	John Smith	USA	2023-05-01	Incredible experience, very informative	1
2	Maria Fernandez	Spain	2023-04-10	Beautiful architecture, loved the culture	2
3	Li Wei	China	2023-07-21	Very peaceful, but crowded	3
4	Sofia Petrova	Russia	2023-06-19	Interesting history, would recommend	4
5	Ahmed Khan	Pakistan	2023-08-05	A serene place, great for meditation	5
6	Yuki Tanaka	Japan	2023-09-12	Loved the view, but the walk was tiring	6
7	Liam O'Connor	Ireland	2023-07-16	Amazing temple, a must-see for anyone in Nepal	7
8	Hannah Mitchell	UK	2023-05-24	A great cultural experience	8
9	Felipe Garcia	Brazil	2023-08-02	Great place for history lovers	9
10	Olivia Jensen	Denmark	2023-06-18	The site was a bit commercialized but still beautiful	10
11	Haruto Nakamura	Japan	2023-09-30	Such a calm and spiritual atmosphere	11
12	Eva Muller	Germany	2023-05-09	Lovely temples and a rich history	12
13	David White	USA	2023-08-13	The place was very busy with tourists	13
14	Olga Ivanova	Russia	2023-07-22	Great views and good food nearby	14
15	Nina Schmidt	Germany	2023-09-10	Very well preserved and informative	15

# Digital\_Archives

## Create Table

```
CREATE TABLE Digital_Archives (
    id INT PRIMARY KEY,
    archive_name VARCHAR(100),
    archive_type VARCHAR(50),
    file_path VARCHAR(255),
    site_id INT,
    FOREIGN KEY (site_id)
REFERENCES
Temples_Heritage_Sites(id));
```

## Inserting Data

```
INSERT INTO Digital_Archives (id, archive_name,
archive_type, file_path, site_id) VALUES
(1, 'Swayambhunath Temple Image Collection', 'Image',
'/archives/swayambhunath_images.zip', 1),
(2, 'Bhaktapur Durbar Square Historical Records',
'Document', '/archives/bhaktapur_docs.zip', 2),
(3, 'Lumbini Sacred Sites Architectural Plans', 'Drawing',
'/archives/lumbini_plans.zip', 3),
(4, 'Pokhara Valley Preservation Reports', 'Report',
'/archives/pokhara_reports.zip', 4),
(5, 'Rara Lake Environmental Studies', 'Report',
'/archives/rara_lake_studies.zip', 5),
(6, 'Patan Durbar Square Site Conditions', 'Image',
'/archives/patan_conditions.zip', 6),
(7, 'Nagarkot Sunrise Preservation Video', 'Video',
'/archives/nagarkot_video.zip', 7)
```

## Retrieve Table: Select \* From Digital\_Archives;

<u>id</u>	<u>archive_name</u>	<u>archive_type</u>	<u>file_path</u>	<u>site_id</u>
1	Swayambhunath Temple Image Collection	Image	/archives/swayambhunath_images.zip	1
2	Bhaktapur Durbar Square Historical Records	Document	/archives/bhaktapur_docs.zip	2
3	Lumbini Sacred Sites Architectural Plans	Drawing	/archives/lumbini_plans.zip	3
4	Pokhara Valley Preservation Reports	Report	/archives/pokhara_reports.zip	4
5	Rara Lake Environmental Studies	Report	/archives/rara_lake_studies.zip	5
6	Patan Durbar Square Site Conditions	Image	/archives/patan_conditions.zip	6
7	Nagarkot Sunrise Preservation Video	Video	/archives/nagarkot_video.zip	7
8	Muktinath Monastery Architectural Survey	Drawing	/archives/muktinath_survey.zip	8
9	Kailashnath Temple Construction Diaries	Document	/archives/kailashnath_diaries.zip	9
10	Gosaikunda Pilgrimage Records	Document	/archives/gosaikunda_records.zip	10
11	Rangjung Gonkhar Monastery Restoration ...	Report	/archives/rangjung_restoration.zip	11
12	Swayambhunath Preservation Videos	Video	/archives/swayambhunath_videos.zip	12
13	Bhaktapur Durbar Square Conservation St...	Report	/archives/bhaktapur_conservation.zip	13
14	Lumbini Peace March Documentation	Document	/archives/lumbini_peace.zip	14
15	Pokhara Valley Pilgrimage Feedback	Survey	/archives/pokhara_feedback.zip	15
NULL	NULL	NULL	NULL	NULL

# BASIC SQL QUERIES-1

## ORDER BY

### Explanation:

- This query retrieves all artifacts' names, types, values, and locations from the Artifacts table.
- The ORDER BY value DESC clause sorts the results in descending order based on the value column, showing the most valuable artifacts first.

Purpose: Helps identify the most valuable artifacts for prioritization in preservation or display.

### Query:

```
SELECT artifact_name, artifact_type, value, location  
FROM Artifacts  
ORDER BY value DESC;
```

Result Grid | Filter Rows:  Export: Wrap Cell Content:

	artifact_name	artifact_type	value	location
▶	Statue of Pashupati	Sculpture	50000.00	Pashupatinath Temple
	Kailashnath Bronze Statue	Sculpture	25000.00	Kailashnath Temple
	Golden Prayer Wheels	Metalwork	22000.00	Patan Durbar Square
	Swayambhunath Idol	Sculpture	20000.00	Swayambhunath Temple
	Tibetan Thangka Painting	Painting	18000.00	Rangjung Gonkhar Monastery
	Bhaktapur Mural	Painting	15000.00	Bhaktapur Durbar Square
	Rara Lake Ritual Vessel	Artifact	12000.00	Rara Lake
	Stone Tablet	Stone	12000.00	Pokhara Valley
	Buddha Footprint	Stone Artifact	10000.00	Lumbini
	Carved Wooden Door	Woodwork	10000.00	Patan Durbar Square
	Stone Carvings	Stone Art	8000.00	Muktinath Temple
	Ancient Coins	Coins	7000.00	Kathmandu Durbar Square
	Silver Ritual Bell	Metalwork	5000.00	Changu Narayan Temple
	Ancient Manuscripts	Document	3000.00	Boudhanath Stupa
	Gosaikunda Water Pot	Ceramic	1500.00	Gosaikunda Lake

# BASIC SQL QUERIES-2

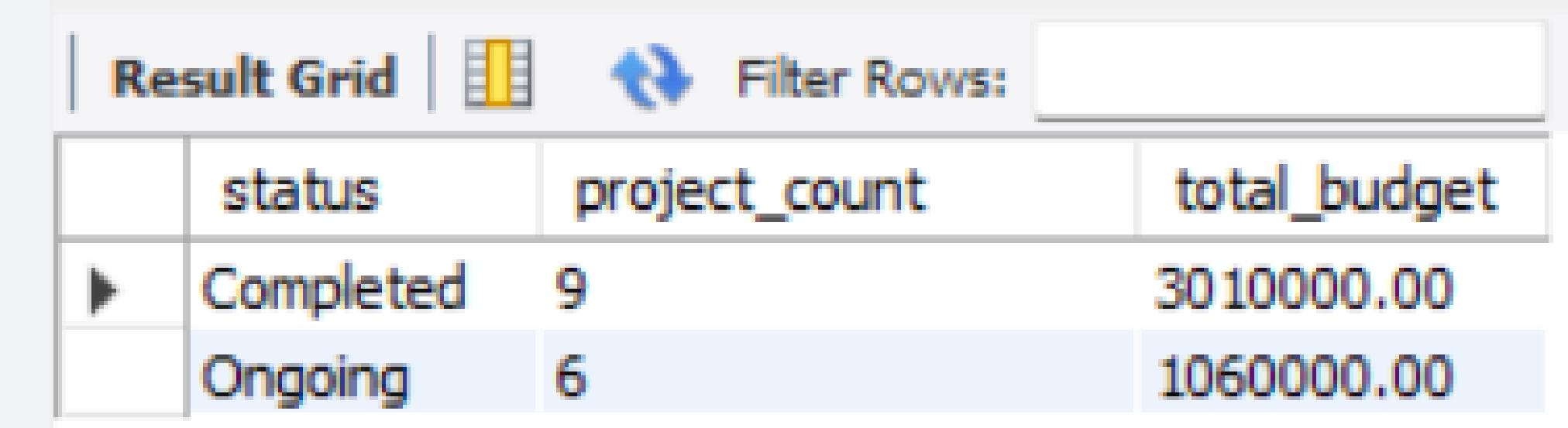
## GROUP BY

### Explanation:

- The SELECT statement retrieves three pieces of information:
  1. status: The current status of the restoration projects (e.g., "Ongoing," "Completed").
  2. COUNT(id): The total number of projects for each status.
  3. SUM(budget): The total budget spent on all projects for each status.
- The GROUP BY status groups all projects by their status.

### Query:

```
SELECT status, COUNT(id) AS project_count,  
SUM(budget) AS total_budget  
FROM Restoration_Projects  
GROUP BY status;
```



The screenshot shows a database query results grid. At the top, there are tabs for "Result Grid" and "Filter Rows". The result grid displays three columns: "status", "project\_count", and "total\_budget". There are two rows of data: one for "Completed" projects with a count of 9 and a total budget of 3010000.00, and another for "Ongoing" projects with a count of 6 and a total budget of 1060000.00. The "total\_budget" column is right-aligned.

	status	project_count	total_budget
▶	Completed	9	3010000.00
	Ongoing	6	1060000.00

# BASIC SQL QUERIES-3

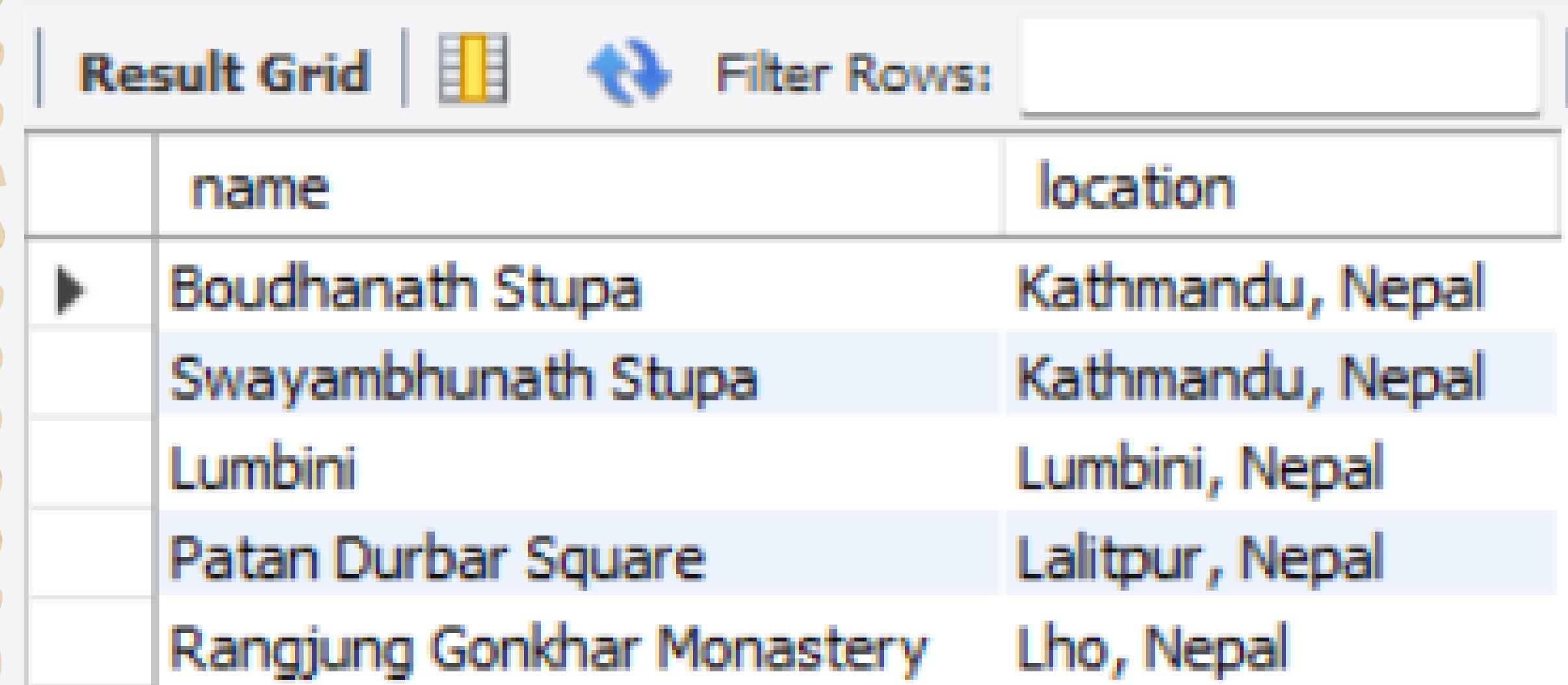
## NOT LIKE

### Explanation:

- This query retrieves the name and location of heritage sites where the name does not end with "Temple". It's useful for excluding specific patterns from your results.
- **Purpose:** To search for a pattern that does not match a specified string.

### Query:

```
SELECT name, location  
FROM Temples_Heritage_Sites  
WHERE name NOT LIKE '%Temple';
```



	name	location
▶	Boudhanath Stupa	Kathmandu, Nepal
	Swayambhunath Stupa	Kathmandu, Nepal
	Lumbini	Lumbini, Nepal
	Patan Durbar Square	Lalitpur, Nepal
	Rangjung Gonkhar Monastery	Lho, Nepal

# BASIC SQL QUERIES-4

## WHERE

### Query:

```
SELECT name, location, historical_significance  
FROM Temples_Heritage_Sites  
WHERE `condition` = 'Excellent';
```

#### Explanation:

- This query retrieves the name, location, and historical significance of heritage sites that have an Excellent condition. It filters the results to only include sites that meet the condition specified.
- **Purpose:** To filter records based on specific conditions.

Result Grid		
name	location	historical_significance
Pashupatinath Temple	Kathmandu Valley, Nepal	Pashupatinath is one of the holiest temples for Hindus, dedicated to Lord Shiva, and a UNESCO World Heritage Site.
Changu Narayan Temple	Bhaktapur District, Nepal	Changu Narayan is one of the oldest Hindu temples still in use, dedicated to Lord Vishnu, and a UNESCO World Heritage Site.
Patan Durbar Square	Lalitpur, Nepal	Patan Durbar Square is a UNESCO World Heritage site, rich in ancient Hindu temples and palaces, including the famous Hiranya Varna Mahavihar.
Janaki Temple	Janakpur, Nepal	Janaki Temple is dedicated to Goddess Sita, located in her birthplace, and an important pilgrimage site for Hindus.
Taleju Temple	Kathmandu Durbar Square, Nepal	Taleju Temple is a significant Hindu temple dedicated to Goddess Taleju, located in the Kathmandu Durbar Square.

# BASIC SQL QUERIES-5

## NOT LIKE

### **Explanation:**

- This query combines data from the Temples\_Heritage\_Sites, Restoration\_Projects, and Researchers tables. It retrieves the name of the heritage site, researcher name, and project name where the location of the site is "Kathmandu Valley, Nepal". The JOIN is used to link the tables, and the WHERE clause filters the results based on location.

### Query:

```
SELECT t.name, r.name AS researcher_name, p.project_name  
FROM Temples_Heritage_Sites t  
JOIN Restoration_Projects p ON t.id = p.site_id  
JOIN Researchers r ON p.id = r.site_id  
WHERE t.location = 'Kathmandu Valley, Nepal';
```

name	researcher_name	project_name
Pashupatinath Temple	Dr. Rajesh Shrestha	Pashupatinath Renovation 2023
Dakshinkali Temple	Dr. Pradeep Bhattarai	Dakshinkali Infrastructure Upgrade
Bhadrakali Temple	Dr. Niranjan Sarki	Bhadrakali Temple Structural Repairs

**Purpose:** To combine rows from two or more tables based on a related column, and filter the results based on a condition.

# Intermediate SQL QUERIES - 1

## Inner Join with Multiple Tables

### Explanation:

- This query joins Temples\_Heritage\_Sites, Restoration\_Projects, and Researchers to list temples in "Excellent" condition along with their associated restoration projects and researchers involved.
- **Purpose:** To retrieve data from multiple related tables where all join conditions are met.

### Query:

```
SELECT t.name AS temple_name, p.project_name, r.name AS researcher_name  
FROM Temples_Heritage_Sites t  
INNER JOIN Restoration_Projects p ON t.id = p.site_id  
INNER JOIN Researchers r ON p.id = r.site_id  
WHERE t.condition = 'Excellent';
```

temple_name	project_name	researcher_name
Pashupatinath Temple	Pashupatinath Renovation 2023	Dr. Rajesh Shrestha
Changu Narayan Temple	Changu Narayan Earthquake Repairs	Dr. Nirmala Tamang
Patan Durbar Square	Patan Durbar Square Restoration	Dr. Deepak Gurung
Janaki Temple	Janaki Temple Painting	Dr. Ramesh Kharel
Taleju Temple	Taleju Temple Security Enhancement	Dr. Laxmi Sharma

# Intermediate SQL QUERIES - 2

## Left Join with Filtering

### Explanation:

- This query retrieves all temples and their associated artifacts, even if some temples do not have artifacts. It filters artifacts by value, showing those worth more than 10,000 or with no artifacts.
- **Purpose:** To retrieve all data from one table (even if there is no match) and match it with related records.

### Query:

```
SELECT t.name AS temple_name, a.artifact_name, a.location  
FROM Temples_Heritage_Sites t  
LEFT JOIN Artifacts a ON t.id = a.id  
WHERE a.value > 10000 OR a.value IS NULL;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
temple_name	artifact_name	location	
Pashupatinath Temple	Statue of Pashupati	Pashupatinath Temple	
Lumbini	Swayambhunath Idol	Swayambhunath Temple	
Changu Narayan Temple	Bhaktapur Mural	Bhaktapur Durbar Square	
Muktinath Temple	Kailashnath Bronze Statue	Kailashnath Temple	
Dakshinkali Temple	Rara Lake Ritual Vessel	Rara Lake	
Janaki Temple	Golden Prayer Wheels	Patan Durbar Square	
Gosaikunda Temple	Tibetan Thangka Painting	Rangjung Gonkhar Monastery	
Rangjung Gonkhar Monastery	Stone Tablet	Pokhara Valley	

# Intermediate SQL QUERIES - 3

## Right Join to Include All Related Entities

### Explanation:

- This query retrieves all restoration projects (even those without researchers) and the associated temples for projects with a budget greater than 200,000.

- **Purpose:** To include all rows from a second table and match with records in the first table.

### Query:

```
SELECT r.name AS researcher_name, p.project_name,  
t.name AS temple_name  
FROM Researchers r  
RIGHT JOIN Restoration_Projects p ON r.site_id = p.site_id  
RIGHT JOIN Temples_Heritage_Sites t ON p.site_id = t.id  
WHERE p.budget > 200000;
```

Result Grid		
researcher_name	project_name	temple_name
Dr. Rajesh Shrestha	Pashupatinath Renovation 2023	Pashupatinath Temple
Dr. Sita Khadka	Boudhanath Stupa Preservation	Boudhanath Stupa
Dr. Hari Kumar	Lumbini Peace Garden Expansion	Lumbini
Dr. Nirmala Tamang	Changu Narayan Earthquake Repairs	Changu Narayan Temple
Dr. Maya Lama	Muktinath Accessibility Improvement	Muktinath Temple
Dr. Deepak Gurung	Patan Durbar Square Restoration	Patan Durbar Square

# Intermediate SQL QUERIES - 4

## Cross Join with Filtering

### Explanation:

- This query generates a Cartesian product of temples and events, but filters results to show only events that occurred at the same temple after January 1, 2023.

- Purpose:** To create all combinations of rows between two tables and apply specific filters.

### Query:

```
SELECT t.name AS temple_name, e.event_name,  
e.event_date  
FROM Temples_Heritage_Sites t  
CROSS JOIN Events e  
WHERE e.site_id = t.id AND e.event_date > '2023-01-01';
```

	temple_name	event_name	event_date
▶	Pashupatinath Temple	Shivaratri Festival	2023-02-27
	Boudhanath Stupa	Buddha Jayanti	2023-04-15
	Lumbini	Lumbini Peace March	2023-05-06
	Changu Narayan Temple	Bhaktapur Durbar Square Anniversary	2023-06-10
	Muktinath Temple	Kathmandu Durbar Square Annual Festival	2023-07-15
	Kailashnath Temple	Rara Lake Clean-Up Event	2023-08-20
	Patan Durbar Square	Changu Narayan Cultural Program	2023-09-01
	Dakshinkali Temple	Muktinath Pilgrimage Walk	2023-04-10
	Rani Pokhari Temple	Kailashnath Temple Dedication	2023-05-05
	Janaki Temple	Patan Durbar Square Heritage Exhibition	2023-06-15
	Bhadrakali Temple	Nagarkot Sunrise View	2023-07-30
	Gosaikunda Temple	Pokhara Valley Boat Race	2023-09-10
	Taleju Temple	Gosaikunda Lake Pilgrimage	2023-08-05
	Rangjung Gonkhar Mon...	Rangjung Gonkhar Monastery Prayer Event	2023-06-25

# Intermediate SQL QUERIES - 5

## LEFT JOIN With Filtering

### Explanation:

- Lists temples and visitor feedback (if available). Filters out records without feedback. This approach ensures unmatched temples are still included.
- **Purpose:** Combine data from two tables and filter specific conditions.

### Query:

```
SELECT t.name AS temple_name, v.name AS visitor_name, v.feedback  
FROM Temples_Heritage_Sites t  
LEFT JOIN Tourists_and_Visitors v ON t.id = v.site_id  
WHERE v.feedback IS NOT NULL;
```

temple_name	visitor_name	feedback
Pashupatinath Temple	John Smith	Incredible experience, very informative
Boudhanath Stupa	Maria Fernandez	Beautiful architecture, loved the culture
Swayambhunath Stupa	Li Wei	Very peaceful, but crowded
Lumbini	Sofia Petrova	Interesting history, would recommend
Changu Narayan Temple	Ahmed Khan	A serene place, great for meditation
Muktinath Temple	Yuki Tanaka	Loved the view, but the walk was tiring
Kailashnath Temple	Liam O'Connor	Amazing temple, a must-see for anyone in Nepal
Patan Durbar Square	Hannah Mitchell	A great cultural experience
Dakshinkali Temple	Felipe Garcia	Great place for history lovers
Rani Pokhari Temple	Olivia Jensen	The site was a bit commercialized but still beautiful
Janaki Temple	Haruto Nakamura	Such a calm and spiritual atmosphere
Bhadrakali Temple	Eva Muller	Lovely temples and a rich history
Gosaikunda Temple	David White	The place was very busy with tourists
Taleju Temple	Olga Ivanova	Great views and good food nearby
Rangjung Gonkhar Mon...	Nina Schmidt	Very well preserved and informative

# Advanced SQL QUERIES - 1

## Query: Temples with Ongoing Projects and Associated Artifacts

```
SELECT t.name AS temple_name, t.location AS temple_location, p.project_name, p.start_date, p.budget, a.artifact_name, a.artifact_type, a.value AS artifact_value  
FROM Temples_Heritage_Sites t  
JOIN Restoration_Projects p ON t.id = p.site_id  
LEFT JOIN Artifacts a ON a.location = t.name  
WHERE p.status = 'Ongoing'  
ORDER BY t.name, p.start_date;
```

Result Grid								
	temple_name	temple_location	project_name	start_date	budget	artifact_name	artifact_type	artifact_value
▶	Bhadrakali Temple	Kathmandu Valley, Nepal	Bhadrakali Temple Structural Repairs	2023-01-15	130000.00	NULL	NULL	NULL
	Dakshinkali Temple	Kathmandu Valley, Nepal	Dakshinkali Infrastructure Upgrade	2023-03-01	180000.00	NULL	NULL	NULL
	Gosaikunda Temple	Rasuwa District, Nepal	Gosaikunda Pathway Repairs	2023-05-01	140000.00	NULL	NULL	NULL
	Muktinath Temple	Mustang District, Nepal	Muktinath Accessibility Improvement	2023-04-01	250000.00	Stone Carvings	Stone Art	8000.00
	Rangjung Gonkhar Monastery	Lho, Nepal	Rangjung Gonkhar Monastery Revamp	2023-07-01	160000.00	Tibetan Thangka Painting	Painting	18000.00
	Swayambhunath Stupa	Kathmandu, Nepal	Swayambhunath Stupa Repair	2023-02-15	200000.00	NULL	NULL	NULL

**Purpose:** List temples with ongoing restoration projects and their associated artifacts.

**Explanation:**

- JOINS: Combines temples, projects, and artifacts.
- WHERE: Filters ongoing projects.

# Advanced SQL QUERIES - 2

## Query: Researchers Linked to High-Severity Incident Temples

```
SELECT r.name AS researcher_name, r.field_of_study, t.name AS temple_name, c.type_of_incident, c.severity,  
c.incident_date FROM Researchers r  
JOIN Temples_Heritage_Sites t ON r.site_id = t.id  
JOIN Community_Violence_Incidents c ON t.id = c.site_id  
WHERE c.severity = 'High'  
ORDER BY c.incident_date DESC;
```

researcher_name	field_of_study	temple_name	type_of_incident	severity	incident_date
Dr. Pramod Thapa	Buddhist Studies	Gosaikunda Temple	Theft	High	2023-10-12
Dr. Shyam Bhandari	Architecture	Swayambhunath Stupa	Vandalism	High	2023-05-20
Dr. Pradeep Bhattarai	Religious Studies	Dakshinkali Temple	Assault	High	2023-04-05
Dr. Laxmi Sharma	Conservation	Bhadrakali Temple	Assault	High	2023-02-01

**Purpose:** Find researchers working on temples with high-severity community violence incidents.

**Explanation:**

- **JOINS:** Links researchers, temples, and incidents.
- **WHERE:** Filters high-severity incidents.

# Advanced SQL QUERIES - 3

## Query: Funding Agencies and Their Contributions to Ongoing Projects

```
SELECT f.agency_name, f.funding_amount, t.name AS temple_name, p.project_name, p.budget, (SELECT SUM(funding_amount)
FROM Funding_Agencies WHERE site_id = t.id) AS total_funding
FROM Funding_Agencies f
JOIN Temples_Heritage_Sites t ON f.site_id = t.id
JOIN Restoration_Projects p ON t.id = p.site_id
WHERE p.status = 'Ongoing'
ORDER BY f.agency_name;
```

agency_name	funding_amount	temple_name	project_name	budget	total_funding
European Union	500000.00	Dakshinkali Temple	Dakshinkali Infrastructure Upgrade	180000.00	500000.00
Global Heritage Fund	70000.00	Bhadrakali Temple	Bhadrakali Temple Structural Repairs	130000.00	70000.00
Nepal Archaeological Society	60000.00	Gosaikunda Temple	Gosaikunda Pathway Repairs	140000.00	60000.00
Nepal Tourism Board	250000.00	Muktinath Temple	Muktinath Accessibility Improvement	250000.00	250000.00
Swiss Embassy	100000.00	Rangjung Gonkhar Monastery	Rangjung Gonkhar Monastery Revamp	160000.00	100000.00
World Bank	200000.00	Swayambhunath Stupa	Swayambhunath Stupa Repair	200000.00	200000.00

**Purpose:** Identify funding agencies supporting temples with ongoing restoration projects.

**Explanation:** \*

- Subquery: Calculates total funding for each temple.
- JOINS: Links funding agencies, temples, and projects.

# Advanced SQL QUERIES - 4

Query: Purpose: Retrieve visitors who left feedback along with details of events and artifacts.

```
SELECT v.name AS visitor_name, v.feedback, e.event_name, e.event_date, a.artifact_name, a.artifact_type, t.name AS temple_name  
FROM Tourists_and_Visitors v  
JOIN Temples_Heritage_Sites t ON v.site_id = t.id  
LEFT JOIN Events e ON e.site_id = t.id  
LEFT JOIN Artifacts a ON a.location = t.name  
WHERE v.feedback IS NOT NULL  
ORDER BY e.event_date DESC, v.name;
```

## Explanation:

JOINS: Combines visitors, temples, events, and artifacts.  
WHERE: Filters for visitors who left feedback.

visitor_name	feedback	event_name	event_date	artifact_name	artifact_type	temple_name
David White	The place was very busy with tourists	Pokhara Valley Boat Race	2023-09-10	NULL	HULL	Gosaikunda Temple
Hannah Mitchell	A great cultural experience	Changu Narayan Cultural Program	2023-09-01	Carved Wooden Door	Woodwork	Patan Durbar Square
Hannah Mitchell	A great cultural experience	Changu Narayan Cultural Program	2023-09-01	Golden Prayer Wheels	Metalwork	Patan Durbar Square
Liam O'Connor	Amazing temple, a must-see for anyone in Nepal	Rara Lake Clean-Up Event	2023-08-20	Kailashnath Bronze Statue	Sculpture	Kailashnath Temple
Olga Ivanova	Great views and good food nearby	Gosaikunda Lake Pilgrimage	2023-08-05	NULL	HULL	Taleju Temple
Eva Muller	Lovely temples and a rich history	Nagarkot Sunrise View	2023-07-30	NULL	HULL	Bhadrakali Temple
Yuki Tanaka	Loved the view, but the walk was tiring	Kathmandu Durbar Square Annual Festival	2023-07-15	Stone Carvings	Stone Art	Muktinath Temple
Nina Schmidt	Very well preserved and informative	Rangjung Gonkhar Monastery Prayer Event	2023-06-25	Tibetan Thangka Painting	Painting	Rangjung Gonkhar Monastery
Haruto Nakamura	Such a calm and spiritual atmosphere	Patan Durbar Square Heritage Exhibition	2023-06-15	NULL	HULL	Janaki Temple
Ahmed Khan	A serene place, great for meditation	Bhaktapur Durbar Square Anniversary	2023-06-10	Silver Ritual Bell	Metalwork	Changu Narayan Temple
Sofia Petrova	Interesting history, would recommend	Lumbini Peace March	2023-05-06	Buddha Footprint	Stone Artifact	Lumbini
Olivia Jensen	The site was a bit commercialized but still beautiful	Kailashnath Temple Dedication	2023-05-05	NULL	HULL	Rani Pokhari Temple
Maria Fernandez	Beautiful architecture, loved the culture	Buddha Jayanti	2023-04-15	Ancient Manuscripts	Document	Boudhanath Stupa
Felipe Garcia	Great place for history lovers	Muktinath Pilgrimage Walk	2023-04-10	NULL	HULL	Dakshinkali Temple
John Smith	Incredible experience, very informative	Shivaratri Festival	2023-02-27	Statue of Pashupati	Sculpture	Pashupatinath Temple
Li Wei	Very peaceful, but crowded	Swayambhunath New Year Celebration	2023-01-01	NULL	HULL	Swayambhunath Stupa

# Advanced SQL QUERIES - 5

## Query:

```
SELECT t.name AS temple_name, t.location AS temple_location, v.name AS visitor_name, v.feedback AS visitor_feedback, e.event_name, e.event_date, a.artifact_name, a.artifact_type, a.value AS artifact_value
FROM Temples_Heritage_Sites t
JOIN Tourists_and_Visitors v ON t.id = v.site_id
LEFT JOIN Events e ON t.id = e.site_id
LEFT JOIN Artifacts a ON a.location = t.name
WHERE LENGTH(v.feedback) > (
    SELECT AVG(LENGTH(feedback))
    FROM Tourists_and_Visitors )
ORDER BY t.name, e.event_date, v.name;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:					
temple_name	temple_location	visitor_name	visitor_feedback	event_name	event_date	artifact_name	artifact_type	artifact_value
Boudhanath Stupa	Kathmandu, Nepal	Maria Fernandez	Beautiful architecture, loved the culture	Buddha Jayanti	2023-04-15	Ancient Manuscripts	Document	3000.00
Gosaikunda Temple	Rasuwa District, Nepal	David White	The place was very busy with tourists	Pokhara Valley Boat Race	2023-09-10	NULL	NULL	NULL
Kailashnath Temple	Sankhu, Nepal	Liam O'Connor	Amazing temple, a must-see for anyone in Nepal	Rara Lake Clean-Up Event	2023-08-20	Kailashnath Bronze Sta...	Sculpture	25000.00
Muktinath Temple	Mustang District, Nepal	Yuki Tanaka	Loved the view, but the walk was tiring	Kathmandu Durbar Square Annual Festi...	2023-07-15	Stone Carvings	Stone Art	8000.00
Pashupatinath Temple	Kathmandu Valley, Nepal	John Smith	Incredible experience, very informative	Shivaratri Festival	2023-02-27	Statue of Pashupati	Sculpture	50000.00
Rani Pokhari Temple	Kathmandu, Nepal	Olivia Jensen	The site was a bit commercialized but still beautiful	Kailashnath Temple Dedication	2023-05-05	NULL	NULL	NULL

## Explanation:

**Nested Query:** `SELECT AVG(LENGTH(feedback)) FROM Tourists_and_Visitors`: - Finds the average length of feedback from all visitors.

`WHERE LENGTH(v.feedback) > (...)`: - Filters visitors with feedback longer than the average feedback length.

**JOINS:** `JOIN Tourists_and_Visitors v`: Connects temples to their visitors based on site\_id.

`LEFT JOIN Events e`: Includes events held at each temple (even if some temples don't have events).

`LEFT JOIN Artifacts a`: Matches artifacts to temples by their location.

**Purpose:** This query provides detailed information on temples, visitors with substantial feedback, related events, and associated artifacts.

# BASIC MATHEMATICAL NOTATION - 1

Query: SELECT \* FROM Restoration\_Projects WHERE status = 'Ongoing';

**Find all temples with ongoing restoration projects**

$\sigma_{status='Ongoing'}(\text{Restoration\_Projects})$

<b>id</b>	<b>project_name</b>	<b>start_date</b>	<b>end_date</b>	<b>budget</b>	<b>status</b>	<b>site_id</b>
3	Swayambhunath Stupa Repair	2023-02-15	NULL	200000.00	Ongoing	3
6	Muktinath Accessibility Improvement	2023-04-01	NULL	250000.00	Ongoing	6
9	Dakshinkali Infrastructure Upgrade	2023-03-01	NULL	180000.00	Ongoing	9
11	Gosaikunda Pathway Repairs	2023-05-01	NULL	140000.00	Ongoing	13
14	Bhadrakali Temple Structural Repairs	2023-01-15	NULL	130000.00	Ongoing	12
15	Rangjung Gonkhar Monastery Revamp	2023-07-01	NULL	160000.00	Ongoing	15
NONE	NONE	NONE	NONE	NONE	NONE	NONE

**Explanation:**

- $\sigma$  represents the selection operation.
- The selection is performed on the Restoration\_Projects table, where the status is 'Ongoing'.

# BASIC MATHEMATICAL NOTATION - 2

## Query:

```
SELECT location, SUM(value) AS total_value FROM Artifacts GROUP BY location;
```

**Find the total value of artifacts at each temple**

$\gamma_{\text{location}; \text{SUM}(\text{value})}(\text{Artifacts})$

### **Explanation:**

- $\gamma$  (Grouping Operation): This operation groups the data by location (temple).
- $\text{SUM}(\text{value})$ : It calculates the total sum of the value of all artifacts at each temple.

**Purpose:** This query sums the value of all artifacts associated with each temple, grouped by location. It provides a summary of the total artifact value at each heritage site or temple, helping to understand the financial or cultural importance of each site based on its artifacts.

location	artifact_count
Pashupatinath Temple	1
Lumbini	1
Boudhanath Stupa	1
Swayambhunath Temple	1
Bhaktapur Durbar Square	1
Kailashnath Temple	1
Muktinath Temple	1
Changu Narayan Temple	1
Rara Lake	1
Kathmandu Durbar Square	1
Patan Durbar Square	2
Rangjung Gonkhar Monastery	1
Gosaikunda Lake	1
Pokhara Valley	1

# BASIC MATHEMATICAL NOTATION - 3

## Query:

```
SELECT site_id, AVG(budget) AS average_budget FROM Restoration_Projects  
WHERE status = 'Ongoing' GROUP BY site_id;
```

**Find the average budget of ongoing restoration projects at each temple**

$$\gamma_{\text{site\_id}; \text{AVG}(\text{budget})} (\sigma_{\text{status}='Ongoing'} (\text{Restoration\_Projects}))$$

## **Explanation:**

- $\sigma$  (Selection Operation): The selection is performed on the Restoration\_Projects table where the status is 'Ongoing'.
- $\gamma$  (Grouping Operation): Groups the results by site\_id (temple) to calculate the average budget for ongoing projects.
- AVG(budget): Calculates the average budget for the ongoing restoration projects at each temple.

**Purpose:** This query calculates the average budget of ongoing restoration projects for each temple.

site_id	average_budget
3	200000.00000
6	250000.00000
9	180000.00000
12	130000.00000
13	140000.00000
15	160000.00000

# BASIC MATHEMATICAL NOTATION - 4

## Query:

```
SELECT site_id, COUNT(id) AS ongoing_project_count FROM Restoration_Projects WHERE status = 'Ongoing' GROUP BY site_id HAVING COUNT(id) >= 1 ORDER BY ongoing_project_count DESC;
```

## Sites with at Least 1 Ongoing Restoration Project

$\sigma$  status = 'Ongoing' (Restoration\_Projects)

$\rho$  site\_id, COUNT(id) → ongoing\_project\_count (Group By site\_id, Having COUNT(id)  $\geq$  1)

## Explanation:

- **$\sigma$  (Selection):** Filters Restoration\_Projects to select projects with 'Ongoing' status.
- **$\rho$  (Projection and Aggregation):** Groups by site\_id, counts ongoing projects per site, and ensures only sites with at least 1 ongoing project are included.

**Purpose:** Identifies sites with ongoing restoration projects and shows the count of such projects, ordered by the number of projects.

site_id	ongoing_project_count
3	1
6	1
9	1
12	1
13	1
15	1

# BASIC MATHEMATICAL NOTATION - 5

## Query:

```
SELECT t.name AS temple_name, COUNT(tv.id) AS total_visitors FROM Temples_Heritage_Sites t JOIN Restoration_Projects rp ON t.id = rp.site_id JOIN Events e ON t.id = e.site_id JOIN Tourists_and_Visitors tv ON e.site_id = tv.site_id WHERE rp.status = 'Ongoing' GROUP BY t.id ORDER BY total_visitors DESC LIMIT 0, 1000;
```

## Find the Total Number of Visitors for Each Temple with Ongoing Restoration Projects

$$\gamma_{\text{site\_id}}; \text{COUNT}(\text{id}) \left( \sigma_{\text{status}='Ongoing'} (\text{Restoration\_Projects}) \right)$$

### Explanation:

- **$\sigma$  (Selection):** Filters the Restoration\_Projects table to select only ongoing restoration projects (status = 'Ongoing').
- **$\gamma$  (Grouping):** Groups the results by site\_id (temple) to calculate the total number of visitors for each temple.
- **COUNT(id):** Counts the number of rows (visitors) for each temple, reflecting the total number of visitors.

temple_name	total_visitors
Swayambhunath Stupa	1
Muktinath Temple	1
Dakshinkali Temple	1
Gosaikunda Temple	1
Bhadrakali Temple	1
Rangjung Gonkhar Monastery	1

**Purpose:** This query calculates the total number of visitors for each temple with an ongoing restoration project. It helps track temple popularity, prioritize resources, and monitor visitor activity around cultural heritage sites.

# INTERMEDIATE MATHEMATICAL NOTATION - 1

## Query:

```
SELECT t.name AS temple_name, COUNT(tv.id) AS total_visitors, SUM(fa.funding_amount) AS total_funding  
FROM Temples_Heritage_Sites t JOIN Restoration_Projects rp ON t.id = rp.site_id JOIN Events e ON t.id =  
e.site_id JOIN Tourists_and_Visitors tv ON e.site_id = tv.site_id JOIN Funding_Agencies fa ON rp.site_id =  
fa.site_id WHERE rp.status = 'Ongoing' GROUP BY t.id ORDER BY total_visitors DESC LIMIT 0, 1000;
```

## Calculate Total Visitors and Total Funding for Each Temple with Ongoing Restoration Projects

$$\gamma_{\text{site\_id}}; \text{COUNT}(\text{tv.id}), \text{SUM}(\text{fa.funding\_amount}) \left( \sigma_{\text{status}='Ongoing'}(\text{Restoration\_Projects}) \right)$$

### Explanation:

- **$\sigma$  (Selection Operation):** Filters the Restoration\_Projects table to only include ongoing restoration projects (status = 'Ongoing').
- **$\gamma$  (Grouping Operation):** Groups the results by site\_id (temple), so that calculations (total visitors and total funding) are done per temple.
- **COUNT(tv.id):** Counts the number of visitors for each temple by counting the rows in the Tourists\_and\_Visitors table.
- **SUM(fa.funding\_amount):** Sums the funding amount for each temple, pulling the data from the Funding\_Agencies table.

	temple_name	total_visitors	total_funding
▶	<a href="#">Swayambhunath Stupa</a>	1	200000.00
	<a href="#">Muktinath Temple</a>	1	250000.00
	<a href="#">Dakshinkali Temple</a>	1	500000.00
	<a href="#">Gosaikunda Temple</a>	1	60000.00
	<a href="#">Bhadrakali Temple</a>	1	70000.00
	<a href="#">Rangjung Gonkhar Monastery</a>	1	100000.00

**Purpose :**This query tracks visitor engagement and financial support for temples with ongoing restoration projects. It helps prioritize temples for investments, security, and restoration based on their popularity and funding.

# INTERMEDIATE MATHEMATICAL NOTATION - 2

## Query:

```
SELECT e.event_name AS event_name, t.name AS temple_name, COUNT(tv.id) AS total_attendees FROM Events e JOIN Temples_Heritage_Sites t ON e.site_id = t.id JOIN Restoration_Projects rp ON t.id = rp.site_id JOIN Tourists_and_Visitors tv ON tv.site_id = e.site_id WHERE rp.status = 'Ongoing' GROUP BY e.id ORDER BY total_attendees DESC LIMIT 0, 1000;
```

## Identify the Most Attended Events at Temples with Ongoing Restoration Projects

$$\gamma_{\text{event\_id}; \text{COUNT}(\text{tv.id})} (\sigma_{\text{status}='Ongoing'} (\text{Restoration\_Projects}))$$

### Explanation:

- **$\sigma$  (Selection Operation):** Filters the Restoration\_Projects table to only include ongoing projects (status = 'Ongoing').
- **$\gamma$  (Grouping Operation):** Groups the data by event\_id to calculate the total number of attendees for each event.
- **COUNT(tv.id):** Counts the number of rows in the Tourists\_and\_Visitors table, which represents the total number of visitors for each event.

event_name	temple_name	total_attendees
Swayambhunath New Year Celebration	Swayambhunath Stupa	1
Kathmandu Durbar Square Annual Festi...	Muktinath Temple	1
Muktinath Pilgrimage Walk	Dakshinkali Temple	1
Pokhara Valley Boat Race	Gosaikunda Temple	1
Nagarkot Sunrise View	Bhadrakali Temple	1
Rangjung Gonkhar Monastery Prayer E...	Rangjung Gonkhar Monastery	1

**Purpose :**The query helps identify the most popular events at temples with ongoing restoration efforts. It aids in evaluating visitor engagement, event planning, and resource allocation for high-traffic events.

# ADVANCED MATHEMATICAL NOTATION

## Find the Most Attended Event and Total Funding for Each Temple with Ongoing Restoration Projects

### Mathematical Notation

$$\gamma_{\text{temple\_name}, \text{MAX}(\text{total\_attendees}), \text{total\_funding}}$$
$$(\sigma_{\text{status}='Ongoing'}(\text{Restoration\_Projects} \bowtie \text{Events} \bowtie \text{Tourists\_and\_Visitors} \bowtie \text{Funding\_Agencies}))$$

temple_name	most_attended_event	max_attendees	total_funding
Swayambhunath Stupa	Swayambhunath New Year Celebration	1	200000.00
Muktinath Temple	Kathmandu Durbar Square Annual Festival	1	250000.00
Dakshinkali Temple	Muktinath Pilgrimage Walk	1	500000.00
Gosaikunda Temple	Pokhara Valley Boat Race	1	60000.00
Bhadrakali Temple	Nagarkot Sunrise View	1	70000.00
Rangjung Gonkhar Monastery	Rangjung Gonkhar Monastery Prayer Event	1	100000.00

### Query:

```
SELECT t.name AS temple_name,
       sub.event_name AS most_attended_event,
       MAX(sub.total_attendees) AS max_attendees,
       sub.total_funding
  FROM Temples_Heritage_Sites t
 JOIN (SELECT e.site_id, e.event_name, COUNT(tv.id) AS total_attendees, SUM(fa.funding_amount) AS total_funding
        FROM Events e
        JOIN Restoration_Projects rp ON e.site_id = rp.site_id
        JOIN Tourists_and_Visitors tv ON tv.site_id = e.site_id
        JOIN Funding_Agencies fa ON rp.site_id = fa.site_id
       WHERE rp.status = 'Ongoing'
      GROUP BY e.site_id, e.id) sub ON t.id = sub.site_id
 GROUP BY t.id, sub.event_name, sub.total_funding
 ORDER BY max_attendees DESC
LIMIT 0, 1000;
```

### Explanation

**Subquery:**  $\sigma_{\text{status} = 'Ongoing'}(\text{Restoration\_Projects} \bowtie \text{Events} \bowtie \text{Tourists\_and\_Visitors} \bowtie \text{Funding\_Agencies})$

The subquery filters ongoing restoration projects and calculates total\_attendees and total\_funding for each temple event by joining the necessary tables.

**Outer Query:**  $\gamma_{\text{temple\_name}, \text{MAX}(\text{total\_attendees}), \text{total\_funding}}$

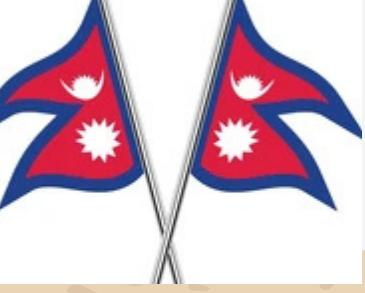
The outer query links the subquery with Temples\_Heritage\_Sites, selecting the most attended event for each temple and its total funding.

**Purpose:** This query identifies the most popular events (by attendance) and the total funding received for ongoing restoration projects at each temple. Insights derived include: Visitor Engagement, Funding Prioritization, Resource Allocation:

# CONCLUSION

- **Cultural Heritage Preservation:** The project successfully digitizes and organizes the information related to Nepal's cultural heritage sites, helping in the preservation of historical temples, artifacts, and events for future generations.
- **Visitor Engagement and Tracking:** By analyzing visitor data, the system tracks how many people are visiting each temple, which events attract the most visitors, and provides insights into the popularity of cultural sites.
- **Financial Monitoring:** The project helps monitor funding from various agencies for ongoing restoration projects, enabling efficient allocation of resources for temple conservation and related activities.
- **Improved Restoration Planning:** The system facilitates tracking of ongoing restoration projects, helping ensure that necessary projects receive the required attention and resources.
- **Community Safety:** The project also focuses on monitoring community violence around heritage sites, helping authorities improve safety and security for both locals and visitors.
- **Collaboration Enhancement:** By centralizing information about cultural sites, restoration efforts, and funding, the project encourages better collaboration among researchers, local authorities, and funding agencies.
- **Data-Driven Decisions:** The system provides valuable data for decision-makers to prioritize temples for further restoration, allocate financial resources, and ensure the safety and preservation of cultural heritage. This project contributes to preserving Nepal's rich cultural heritage while ensuring its sustainable management, promoting tourism, and improving safety around cultural sites.

# References



**Elmasri, R., & Navathe, S. (2016).**

Fundamentals of Database Systems. Pearson.

**UNESCO (2024).**

Cultural Heritage Preservation Guidelines. Available at: <https://www.unesco.org/en>

**Nepal Government (2024).**

Cultural Heritage and Restoration Projects in Nepal. Available at: <https://www.nepal.gov.np/>

**Culture & Society of Nepal**

Preservation of Cultural Heritage in Nepal. Available at: <https://wcn.org.np>.

**Nepal's Heritage Sites and Their Conservation Status.** Available at:

<https://www.iucnredlist.org>.

**World Bank (2024).**

Funding for Cultural Heritage Projects in Nepal. Available at: <https://www.worldbank.org>.

**Thank  
you !**