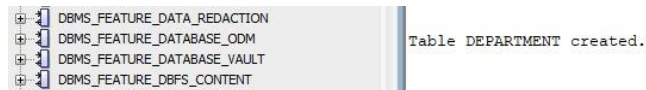


Phase V – Table Implementation and Data Insertion

CREATING TABLE

- 1. Department Table

```
CREATE TABLE Department (  
    DepartmentID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,  
    Name VARCHAR2(100) NOT NULL UNIQUE,  
    Head VARCHAR2(100)  
);
```



-- 2. AppUser Table (replaces "User", which is a reserved keyword)

```
CREATE TABLE AppUser (  
    UserID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,  
    Name VARCHAR2(100) NOT NULL,  
    Email VARCHAR2(100) NOT NULL UNIQUE,  
    Password VARCHAR2(255) NOT NULL,  
    Role VARCHAR2(20) NOT NULL CHECK (Role IN ('Admin', 'Faculty', 'Student', 'Manager')),  
    DepartmentID NUMBER,  
    CONSTRAINT fk_user_department FOREIGN KEY (DepartmentID) REFERENCES Department(DepartmentID)  
);
```



-- 3. Resource Table

```
CREATE TABLE Resource (  
    ResourceID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,  
    Name VARCHAR2(100) NOT NULL,  
    Type VARCHAR2(50) NOT NULL CHECK (Type IN ('Classroom', 'Lab', 'Equipment', 'Book')),  
    Location VARCHAR2(100),  
    Status VARCHAR2(20) DEFAULT 'Available' CHECK (Status IN ('Available', 'Booked', 'Maintenance')),  
    Description CLOB,  
    DepartmentID NUMBER,  
    CONSTRAINT fk_resource_department FOREIGN KEY (DepartmentID) REFERENCES Department(DepartmentID)  
);
```



-- 4. Booking Table

```
CREATE TABLE Booking (  
    BookingID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,  
    UserID NUMBER NOT NULL,  
    ResourceID NUMBER NOT NULL,  
    StartTime TIMESTAMP NOT NULL,  
    EndTime TIMESTAMP NOT NULL,  
    Status VARCHAR2(20) NOT NULL CHECK (Status IN ('Pending', 'Approved', 'Rejected', 'Cancelled')),  
    Purpose VARCHAR2(255),  
    CONSTRAINT fk_booking_user FOREIGN KEY (UserID) REFERENCES AppUser(UserID),  
    CONSTRAINT fk_booking_resource FOREIGN KEY (ResourceID) REFERENCES Resource(ResourceID),  
    CONSTRAINT chk_booking_time CHECK (EndTime > StartTime)  
);
```

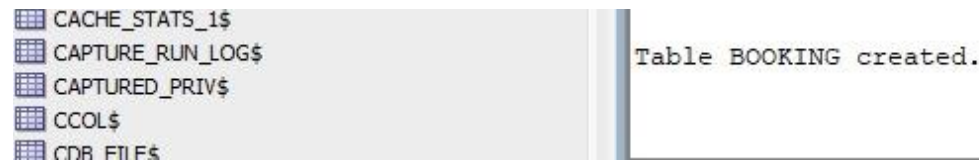


Table BOOKING created.

-- 5. Maintenance Table

```
CREATE TABLE Maintenance (
    MaintenanceID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,
    ResourceID    NUMBER NOT NULL,
    ReportedBy    NUMBER NOT NULL,
    Description    CLOB,
    StartDate     DATE,
    EndDate       DATE,
    Status        VARCHAR2(20) NOT NULL CHECK (Status IN ('Ongoing', 'Completed')),
    CONSTRAINT fk_maintenance_resource FOREIGN KEY (ResourceID) REFERENCES Resource(ResourceID),
    CONSTRAINT fk_maintenance_reporter FOREIGN KEY (ReportedBy) REFERENCES AppUser(UserID),
    CONSTRAINT chk_maintenance_dates CHECK (EndDate IS NULL OR EndDate >= StartDate)
);
```

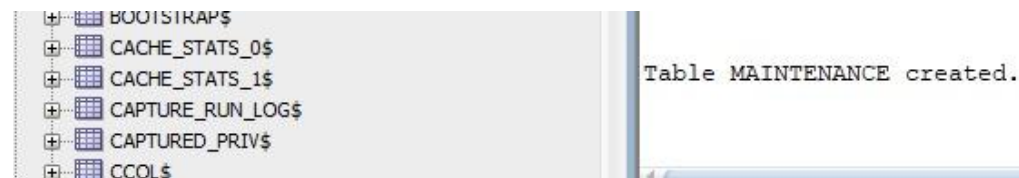


Table MAINTENANCE created.

-- 7. Notification Table

```
CREATE TABLE Notification (
    NotificationID NUMBER GENERATED BY DEFAULT AS IDENTITY PRIMARY KEY,
    UserID         NUMBER NOT NULL,
    Message        CLOB,
    Timestamp      TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    Type           VARCHAR2(30) NOT NULL CHECK (Type IN ('Booking', 'Maintenance', 'General')),
    Status         VARCHAR2(10) DEFAULT 'Unread' CHECK (Status IN ('Read', 'Unread')),
    CONSTRAINT fk_notification_user FOREIGN KEY (UserID) REFERENCES AppUser(UserID)
);
```

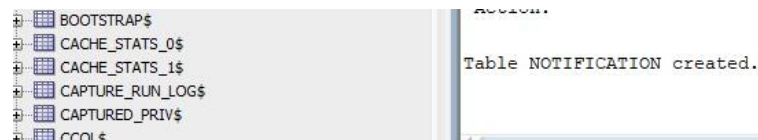
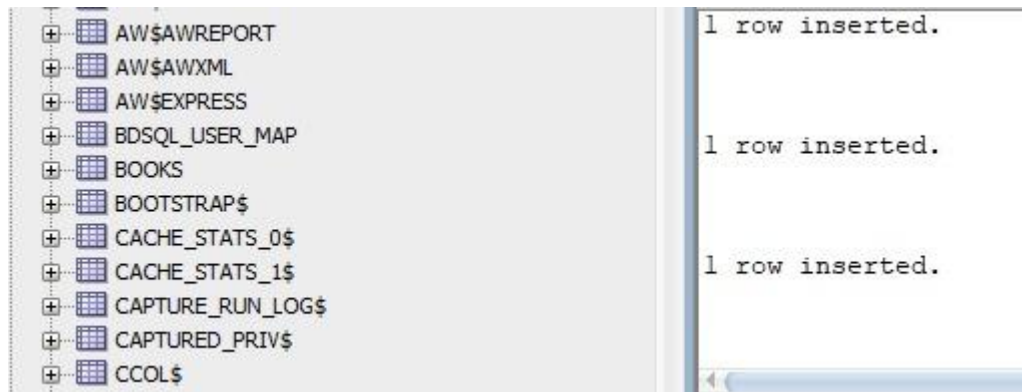


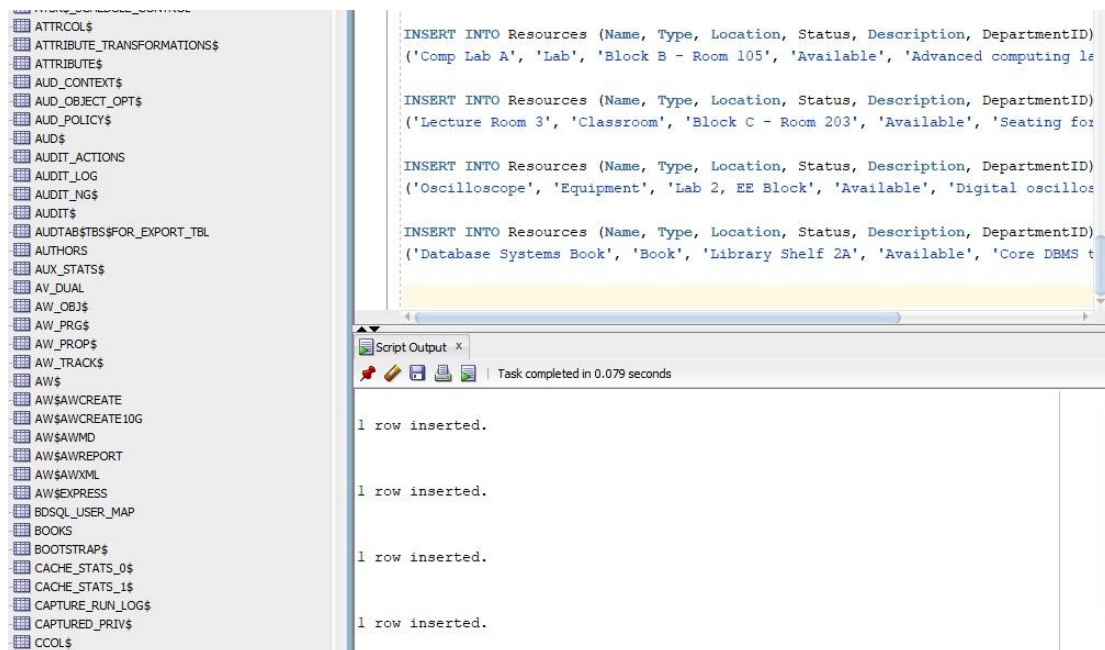
Table NOTIFICATION created.

INSERT INTO TABLES

```
INSERT INTO Department (Name, Head) VALUES ('Computer Science', 'Dr. Alice Johnson');
INSERT INTO Department (Name, Head) VALUES ('Electrical Engineering', 'Dr. Mark Benson');
INSERT INTO Department (Name, Head) VALUES ('Library Services', 'Mrs. Janet Cole');
```



INSERT INTO Resource (Name, Type, Location, Status, Description, DepartmentID) VALUES
 ('Comp Lab A', 'Lab', 'Block B - Room 105', 'Available', 'Advanced computing lab with 40 PCs', 1),
 ('Lecture Room 3', 'Classroom', 'Block C - Room 203', 'Available', 'Seating for 60 students', 1),
 ('Oscilloscope', 'Equipment', 'Lab 2, EE Block', 'Available', 'Digital oscilloscope, 50MHz', 2),
 ('Database Systems Book', 'Book', 'Library Shelf 2A', 'Available', 'Core DBMS textbook', 3);



INSERT INTO Booking (UserID, ResourceID, StartTime, EndTime, Status, Purpose) VALUES
 (1, 1, TO_TIMESTAMP('2025-05-25 09:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO_TIMESTAMP('2025-05-25 11:00:00', 'YYYY-MM-DD HH24:MI:SS'), 'Approved', 'Group project work'),
 (2, 2, TO_TIMESTAMP('2025-05-26 14:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO_TIMESTAMP('2025-05-26 16:00:00', 'YYYY-MM-DD HH24:MI:SS'), 'Pending', 'Lecture session'),
 (1, 4, TO_TIMESTAMP('2025-05-27 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO_TIMESTAMP('2025-05-27 12:00:00', 'YYYY-MM-DD HH24:MI:SS'), 'Approved', 'Research reading')

ARTIST
ARTWORK
ASSEMBLY\$
ASSOCIATION\$
ATEMPTAB\$
ATSK\$SCHEDULE_CONTROL
ATTRCOL\$
ATTRIBUTE_TRANSFORMATIONS\$
ATTRIBUTES\$
AUD_CONTEXT\$
AUD_OBJECT_OPT\$
AUD_POLICY\$
AUD\$
AUDIT_ACTIONS
AUDIT_LOG
AUDIT_NG\$
AUDIT\$
AUDTAB\$B\$FOR_EXPORT_TBL
AUTHORS
AUX_STATS\$
AV_DUAL
AW_OBJ\$

```
INSERT INTO Booking (UserID, ResourceID, StartTime, EndTime, Status, Purpose) \
(1, 1, TO_TIMESTAMP('2025-05-25 09:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO_TIMESTAMP('2025-05-25 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), 'Booked', 'Music Practice')

INSERT INTO Booking (UserID, ResourceID, StartTime, EndTime, Status, Purpose) \
(2, 2, TO_TIMESTAMP('2025-05-26 14:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO_TIMESTAMP('2025-05-26 15:00:00', 'YYYY-MM-DD HH24:MI:SS'), 'Booked', 'Music Practice')

INSERT INTO Booking (UserID, ResourceID, StartTime, EndTime, Status, Purpose) \
(1, 4, TO_TIMESTAMP('2025-05-27 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), TO_TIMESTAMP('2025-05-27 11:00:00', 'YYYY-MM-DD HH24:MI:SS'), 'Booked', 'Music Practice')

INSERT INTO AppUser (Name, Email, Password, Role, DepartmentID) VALUES
('John Doe', 'john.doe@university.edu', 'password123', 'Student', 1);

INSERT INTO AppUser (Name, Email, Password, Role, DepartmentID) VALUES
('Dr. Emily Smith', 'emily.smith@university.edu', 'securepass', 'Faculty', 1);

INSERT INTO AppUser (Name, Email, Password, Role, DepartmentID) VALUES
```