//1

CREATE TYPE Person AS OBJECT (

name VARCHAR2(50),

age INT,

address VARCHAR2(60)

);

//2

SET SERVEROUTPUT ON

DECLARE

p1 Person := Person('John Doe', 30, '123 Main Street');

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Name: ' || p1.name);

DBMS\_OUTPUT.PUT\_LINE('Age: ' || p1.age);

DBMS\_OUTPUT.PUT\_LINE('Address: ' || p1.address);

END;

//3

CREATE OR REPLACE TYPE Person AS OBJECT (

name VARCHAR2(100),

age NUMBER,

address VARCHAR2(255),

MEMBER PROCEDURE display\_details,

MEMBER PROCEDURE update\_age(new\_age NUMBER)

);

CREATE OR REPLACE TYPE BODY Person AS

MEMBER PROCEDURE display\_details IS

BEGIN

DBMS\_OUTPUT.PUT\_LINE('Name: ' || name);

DBMS\_OUTPUT.PUT\_LINE('Age: ' || age);

DBMS\_OUTPUT.PUT\_LINE('Address: ' || address);

END display\_details;

MEMBER PROCEDURE update\_age(new\_age NUMBER) IS

BEGIN

age := new\_age;

END update\_age;

END;

DECLARE

p1 Person;

BEGIN

p1 := Person('John Doe', 30, '123 Main Street');

p1.display\_details;

p1.update\_age(35);

DBMS\_OUTPUT.PUT\_LINE('Updated details:');

p1.display\_details;

END;

//4

CREATE OR REPLACE TYPE Employee AS OBJECT (

e\_id NUMBER(20),

e\_name VARCHAR2(100),

salary NUMBER,

bonus\_amount NUMBER,

MEMBER PROCEDURE calculate\_bonus

);

CREATE OR REPLACE TYPE BODY Employee AS

MEMBER PROCEDURE calculate\_bonus IS

BEGIN

IF salary < 50000 THEN

bonus\_amount := salary\*0.1;

ELSIF salary < 100000 THEN

bonus\_amount := salary\*0.15;

ELSE

bonus\_amount := salary\*0.2;

END IF;

END calculate\_bonus;

END;

DECLARE

emp1 Employee;

BEGIN

emp1 := Employee(101, 'John Doe', 45000, 0);

emp1.calculate\_bonus;

DBMS\_OUTPUT.PUT\_LINE('Bonus: ' || emp1.bonus\_amount);

END;

//5

CREATE OR REPLACE TYPE Shape AS OBJECT (

length NUMBER,

width NUMBER,

MEMBER FUNCTION calculate\_area RETURN NUMBER

);

CREATE OR REPLACE TYPE BODY Shape AS

MEMBER FUNCTION calculate\_area RETURN NUMBER IS

BEGIN

RETURN length \* width;

END calculate\_area;

END;

DECLARE

s1 Shape := Shape(5, 10);

area NUMBER;

BEGIN

area := s1.calculate\_area;

DBMS\_OUTPUT.PUT\_LINE('Area: ' || area);

END;

//6

CREATE OR REPLACE TYPE Shape AS OBJECT (

length NUMBER,

width NUMBER,

MEMBER FUNCTION calculate\_area RETURN NUMBER,

MEMBER FUNCTION is\_square RETURN BOOLEAN

);

CREATE OR REPLACE TYPE BODY Shape AS

MEMBER FUNCTION calculate\_area RETURN NUMBER IS

BEGIN

RETURN length \* width;

END calculate\_area;

MEMBER FUNCTION is\_square RETURN BOOLEAN IS

BEGIN

IF length = width THEN

RETURN TRUE;

ELSE

RETURN FALSE;

END IF;

END is\_square;

END;

DECLARE

s1 Shape := Shape(5, 5);

is\_square BOOLEAN;

BEGIN

is\_square := s1.is\_square;

DBMS\_OUTPUT.PUT\_LINE('Is square: ' || CASE WHEN is\_square THEN 'TRUE' ELSE 'FALSE' END);

END;