

Maher Development System

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Introduction

Prince Sultan University (PSU), known for upholding academic standards, introduces Maher—a transformative system designed to enhance professional training. Maher emerges from PSU's commitment to nurturing skillful educators and streamlining the continuous evolution of faculty. This poster guides you through Maher's inception, from its academic roots to the intricacies of designing a comprehensive database.

Purpose

- ❖ Enable PSU faculty registration for diverse professional training activities.
- ❖ Meticulously record faculty points and acquired skills through participation.
- ❖ Identify and recognize faculty excellence, whether as attendees or presenters.
- ❖ Promote Professional Growth and encourage continuous learning.
- ❖ Enhance communication and knowledge-sharing within the PSU community.

Scope

User View:

- ❑ **Log-in Page:** Allows users to sign in.
- ❑ **Search Page:** Explore by department, time, date, or activity name.
- ❑ **Department Page:** Access to a comprehensive list of all activities.
- ❑ **Evaluation Survey Page:** User-friendly feedback platform.
- ❑ **Issue-Ticketing Page:** Address concerns and suggest improvements.

Department Employees View:

- ❑ **Evaluation Surveys Page:** Display of recorded surveys.
- ❑ **Issue-Ticketing Page:** Handling of complaints and recommendations.
- ❑ **Activity Information Page:** Form to announce professional training activities.
- ❑ **Manual Registration Page:** Option for manual activity registration.
- ❑ **User Profile Management Page:** Access to modify user profiles.

Functional and Non-Functional Requirements

Functional Requirements:

- The system must register new users.
- The system must allow sign in using SSN/Iqama Number or PSU_mail.
- The system must verify accounts via phone number.
- The system shall allow chairpersons to access the activity' dashboard.
- The system must allow admins to fill-in information about activities.

Non-Functional Requirements:

- ❑ **Performance:** Handle many users, fast response.
- ❑ **Scalability:** Smooth scale, support expansion.
- ❑ **Security:** Robust data security, audits.
- ❑ **Reliability:** 24/7 availability, backups.
- ❑ **Usability:** Intuitive interface, quick response.

Scenario

	Description
1	User Classification: Users are either faculty members or administrative staff identified by Iqama Number/SSN, PSU_ID, and PSU_mail.
2	Role-Specific Attributes: Users share common attributes and possess role-specific details based on their roles.
3	Academic Hierarchy: Faculty members have ranks and may manage departments, which are associated with colleges.
4	Professional-Training Activities (PT): Diverse PT activities take place at various locations and are presented by external organizations.
5	User Participation: Users engage in PT activities with specific roles, receiving recognition through ticket numbers, points, and certificates.
6	Evaluation and Satisfaction: Users provide satisfaction scores for PT activities through integral evaluation surveys.
7	Resources and Integration: PT activities include essential resources, emphasizing the interconnectedness of system elements.

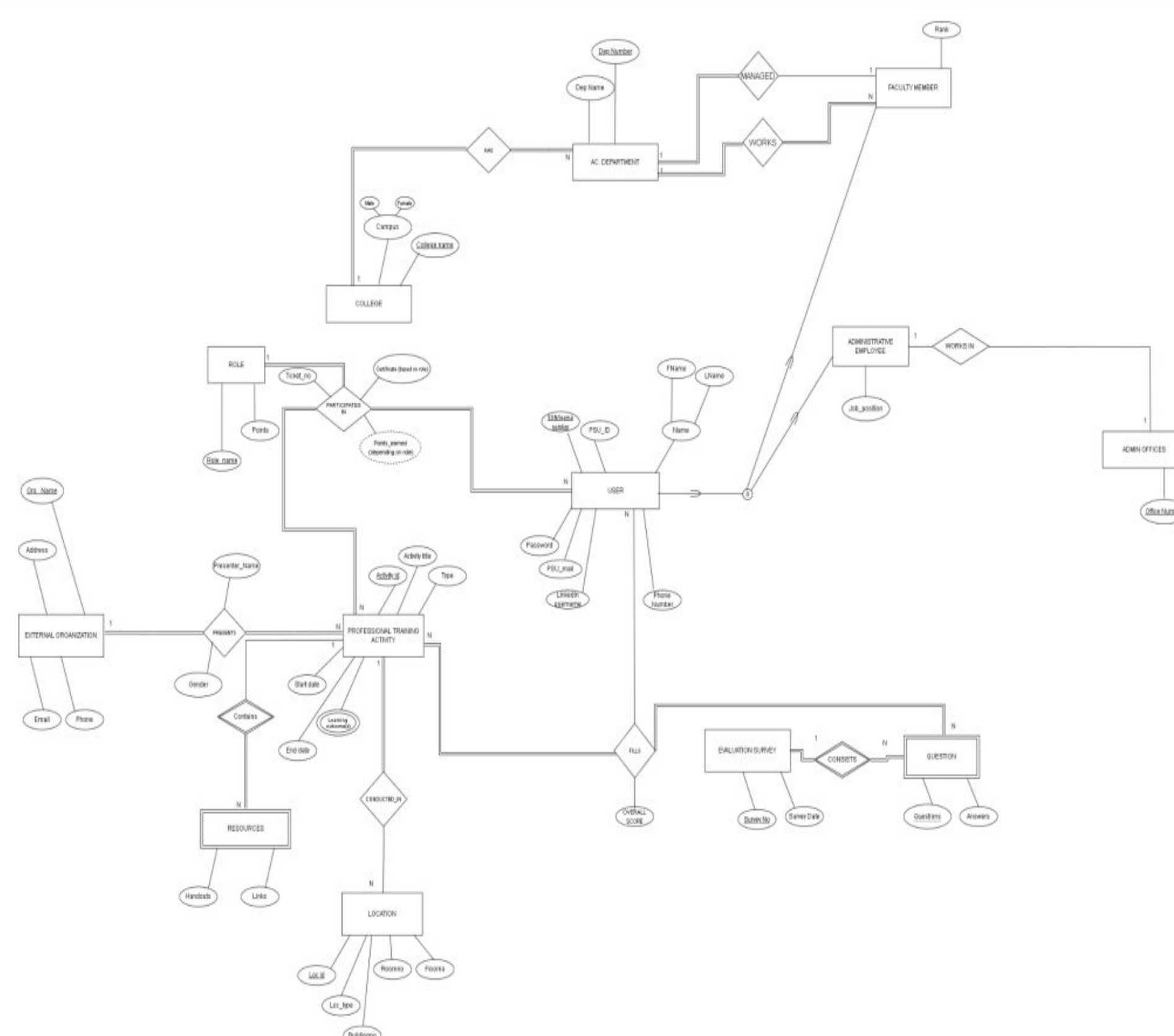
Data Requirements

- Users, faculty, and staff are identified by Iqama Number/SSN, PSU_ID, and PSU_mail, with common attributes like Name, Password, LinkedIn Username, and Phone Number.
- Faculty members can manage one AC Department, which, in turn, is managed by one faculty member.
- PT activities are described by id, title, type, dates, and learning outcomes.
- PT activities are presented by external organizations, details include presenter_Name, org_name, address, email, and phone.
- Users participate in PT activities with roles, issued Ticket numbers, and points/certificates recorded.

Entity Definition Table:

Entity	Description	Identifier	Attribute
User	User is a general entity which allows access to the system. Can either be faculty members or administrative employees	<u>SSN/Iqama number</u>	-SSN/Iqama number -PSU_ID -Name (first and last). -Password. -PSU_mail -LinkedIn username. -Phone_Number
Faculty Member	Inherits User's attributes in addition to role-specific attributes	<u>Inherited key attribute from superclass</u>	-Rank
College	An entity that has information about each college's name and campus	<u>College_name</u>	-College name -Campus
Administrative Employee	Inherits User's attributes in addition to role specific attributes	<u>Inherited key attribute from superclass</u>	-Job_position
Professional-Training Activity	An entity that has information about activity id, activity title, type, start date, end date, and learning outcome(s).	<u>Activity id</u>	-Activity_id -Activity title -Type -Start date -End date -Learning outcome(s)

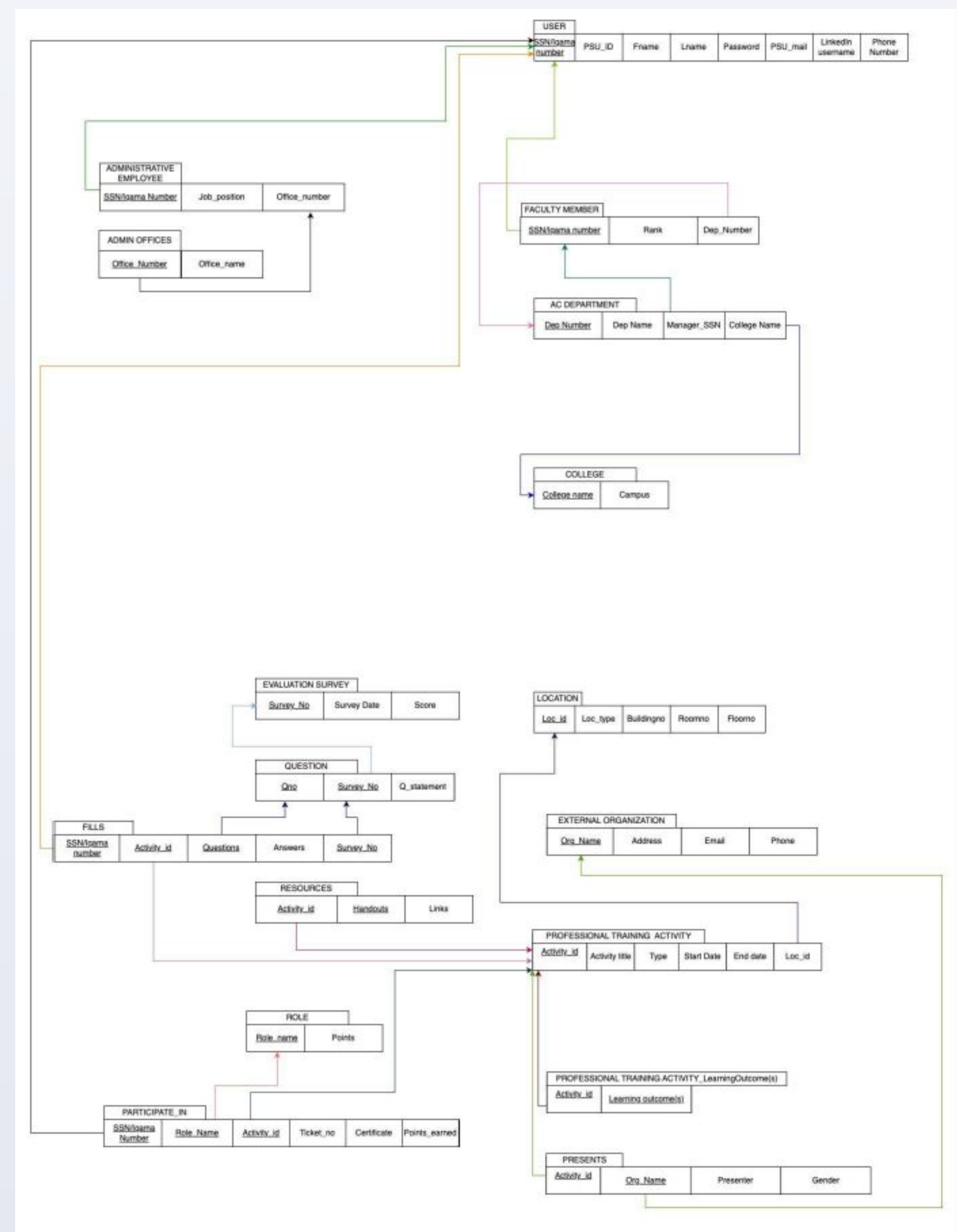
EER Model



Data dictionary

PUSER						
Column name	Key Type	Constraints	FK Table	FK Column	Data Type	Length
SSN/Iqama number	PK	PK			CHAR	9
PSU_ID		Not null, unique			Varchar	9
Fname		Not null			Varchar	20
Lname		Not null			Varchar	20
Password		Not null			Varchar	45
PSU_mail		Not null, unique			Varchar	70
LinkedIn_username					Varchar	30
Phone_Number		Not null, unique			Char	10

Normalized Relational Model



Creating tables

```
CREATE TABLE puser(  
    ssn CHAR(9) PRIMARY KEY ,  
    psu_id VARCHAR(9) NOT NULL UNIQUE,  
    fname VARCHAR(20) NOT NULL,  
    lname VARCHAR(20) NOT NULL,  
    pwd VARCHAR(45) NOT NULL,  
    psu_mail VARCHAR(70) NOT NULL,  
    luser_name VARCHAR(30),  
    Phone_number CHAR(10) NOT NULL  
);
```

Inserting records in each table

```
--admin_offices
INSERT INTO admin_offices VALUES ('101','Admissions Office' );
INSERT INTO admin_offices VALUES ('201','President Office' );
INSERT INTO admin_offices VALUES ('301','Provost Office' );
INSERT INTO admin_offices VALUES ('401','Admin Affairs Office' );
INSERT INTO admin_offices VALUES ('501','HR Office' );
INSERT INTO admin_offices VALUES ('601','Finance Office' );
INSERT INTO admin_offices VALUES ('701','Registration Office' );
INSERT INTO admin_offices VALUES ('801','IT Services Office' );
INSERT INTO admin_offices VALUES ('901','Legal Affairs Office' );
```

SQL Queries

```
1 SELECT ssn, rank
2 FROM faculty_member
3 WHERE dep_number IN (SELECT dep_number
4                       FROM faculty_member
5                       WHERE ssn = '221295423')
```

Results	Explain	Describe	Saved SQL	History
SSN		RANK		
214496783		Instructor		
221295423		Assistant Professor		

```
1 SELECT ssn, Fname, Lname
2 FROM puser
3 WHERE ssn NOT IN
4
5 (SELECT ssn
6 FROM participate_in);
```

Results	Explain	Describe	Saved SQL	History
SSN	FNAME		LNAME	
222064339	Sita		Mansour	
221511417	Hussein		Almutairi	
132465739	Osamah		Alshammari	
224356700	Jomana		Alasbali	
192046530	Dana		Almajed	

Conclusion

In crafting the Maher Development System, we have pursued to enhance professional training at Prince Sultan University. This transformative platform, born from PSU's commitment to fostering skillful educators, seamlessly integrates the continuous evolution of faculty and the dynamic needs of academic departments.

Learning outcomes:

1. **Complete System Design:** We learned to create a well-rounded system.
2. **User-Centric Thinking:** Our approach prioritized user perspectives.
3. **Technical Proficiency:** Designing databases and implementing SQL queries.
4. **Teamwork:** Embracing collaborative work.