DBMS Iteration 3
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SE-B
DOCUMENTATION

Job Fair Management System Documentation

Overview

The Job Fair Management System is a relational database-based application built on Microsoft SQL Server. It is designed to streamline the organization and execution of job fairs by supporting roles such as Students, Recruiters, TPOs (Training and Placement Officers), and Coordinators. The system tracks events, job postings, applications, interviews, and various activities within the fair.

Design Decisions

1. User Role Differentiation

All users are stored in a centralized USERS table with distinct roles using a `Role` column. This provides flexibility and centralized authentication. Each role (Student, TPO, Recruiter, Coordinator) has a separate table for role-specific data.

2. Email Handling

The `USER_email` table separates emails from the USERS table to allow multiple email associations or additional attributes in the future, and to enforce email format constraints independently.

3. Normalization

The schema follows normalization rules (up to 3NF) to reduce redundancy:

- Skills are abstracted in the SKILL table.

- Relationships like student skills and job-required skills are maintained through many-to-many join tables (STUDENT_SKILLS, JOB_SKILLS).

4. Events and Booths

Job fair events are modeled in JOB_FAIR_EVENTS, and booths are associated with both events and companies. The design supports booth check-ins, monitoring, and traffic tracking for event analysis.

5. Job Postings and Applications

Recruiters post jobs in the JOB_POSTING table. Applications are tracked in the APPLICATION table with statuses such as Pending, Accepted, and Rejected.

6. Interviews and Reviews

Interviews are scheduled post-application and have a status field for lifecycle tracking. Reviews are associated uniquely per interview, allowing students to provide ratings and feedback.

7. Approval Mechanism

To maintain integrity and control, isApproved fields were added to STUDENT and RECRUITER tables. Only approved users gain access.

8. Hiring Status

The isHired field in INTERVIEWS allows recruiters to mark candidates as hired based on interview results. Only interviews marked as 'Completed' are eligible for this status.

Administrator Guide

Key Tables to Monitor

- USERS, USER_email

- STUDENT, RECRUITER, TPO, COORDINATOR

- `JOB_FAIR_EVENTS, BOOTH`

- `APPLICATION, INTERVIEWS, REVIEW`

Typical Admin Tasks

- **Approve or reject student and recruiter registrations via `isApproved`.**

- **Monitor booth check-in activity and staffing.**

- **Assign TPOs and Coordinators to booths.**

- **Schedule and manage events.**

- **Maintain and monitor company registrations.**

Deactivation Flow

When users are deactivated (rejected or removed), cascading deletes ensure:

- **Associated emails (`USER_email`) are also deleted.**

- **For students, related applications, skills, certifications, and academic records are automatically removed.**

User Guide

Students

- **Register and wait for approval.**

- **Update skills and academic records.**

- **Search and apply for job postings.**

- **Check in at booths during events.**

- **Attend interviews and provide feedback.**

Recruiters

- **Post jobs and define required skills.**

- **Accept or reject applications.**

- **Schedule interviews during events.**

- **Mark candidates as hired after interviews.**
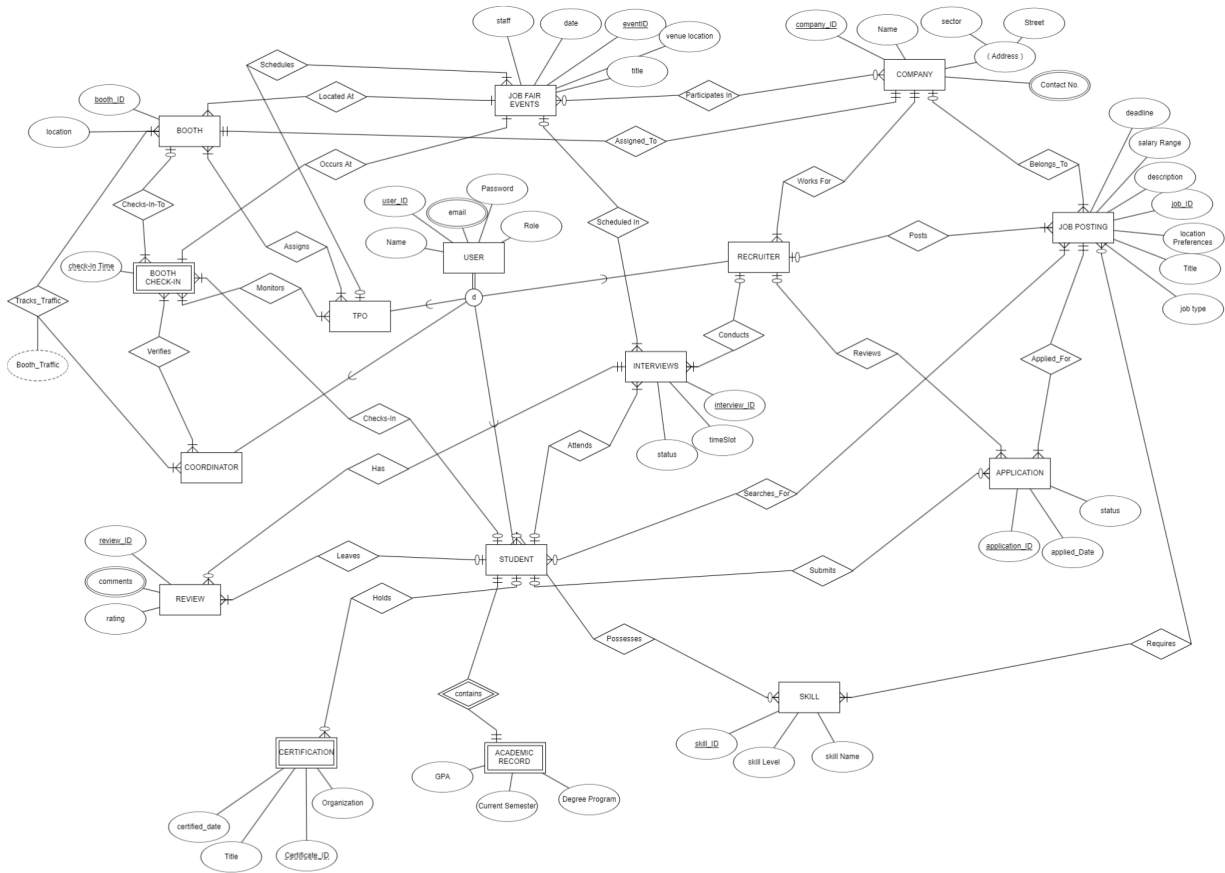
Coordinators

- **Verify student check-ins.**

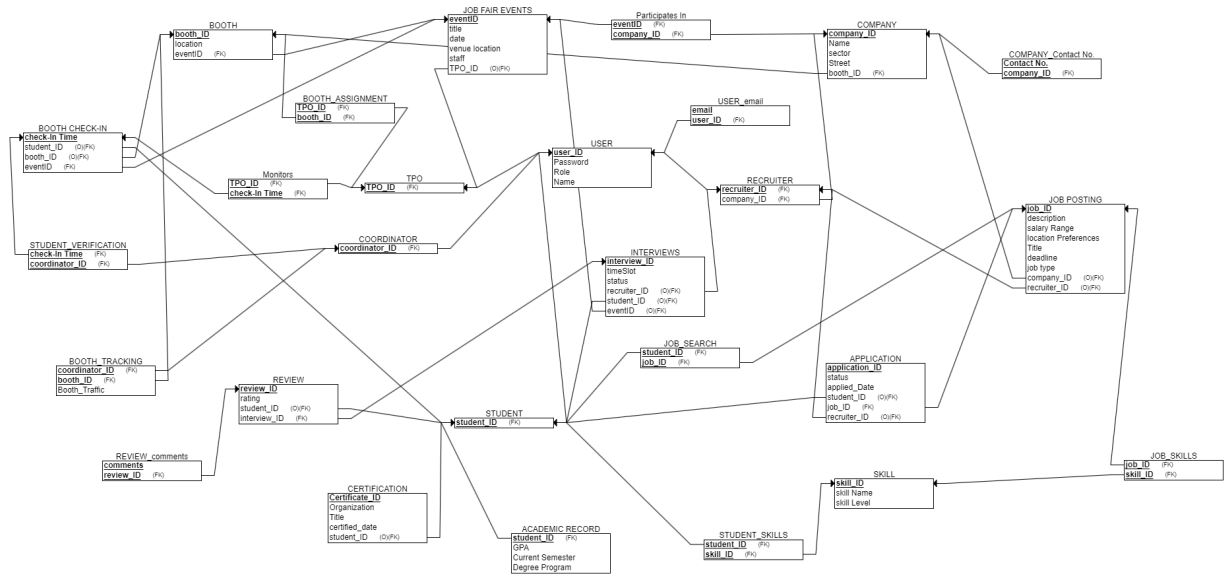- **Monitor booths and handle issues.**

TPOs

- **Schedule job fair events.**

- **Assign booths to companies.**

- **Oversee monitoring and coordination.**

ERD

Relational Schema

BOOTH
booth_ID
location
eventID (FK)

JOB FAIR EVENTS
eventID
title
date
venue location
staff
TPO_ID (O)(FK)

Participates In
eventID (FK)
company_ID (FK)

COMPANY
company_ID
Name
sector
Street
booth_ID (FK)

COMPANY_ Contact No.
Contact No.
company_ID (FK)

BOOTH CHECK-IN
check-in Time
student_ID (O)(FK)
booth_ID (O)(FK)
eventID (FK)

BOOTH_ASSIGNMENT
TPO_ID (FK)
booth_ID (FK)

USER_email
email
user_ID (FK)

USER
user_ID
Password
Role
Name

Monitors
TPO_ID (FK)
check-in Time

TPO
TPO_ID (FK)

RECRUITER
recruiter_ID (FK)
company_ID (FK)

STUDENT_VERIFICATION
check-in Time (FK)
coordinator_ID (FK)

COORDINATOR
coordinator_ID (FK)

INTERVIEWS
interview_ID
timeSlot
status
recruiter_ID (O)(FK)
student_ID (O)(FK)
eventID (O)(FK)

JOB POSTING
job_ID
description
salary Range
location Preferences
Title
deadline
job type
company_ID (O)(FK)
recruiter_ID (O)(FK)

BOOTH_TRACKING
coordinator_ID (FK)
booth_ID (FK)
Booth_Traffic

REVIEW
review_ID
rating
student_ID (O)(FK)
interview_ID (FK)

JOB_SEARCH
student_ID (FK)
job_ID (FK)

APPLICATION
application_ID
status
applied_Date
student_ID (O)(FK)
job_ID (FK)
recruiter_ID (O)(FK)

REVIEW_comments
comments
review_ID (FK)

STUDENT
student_ID (FK)

JOB_SKILLS
job_ID (FK)
skill_ID (FK)

CERTIFICATION
Certificate_ID
Organization
Title
certified_date
student_ID (O)(FK)

SKILL
skill_ID
skill Name
skill Level

ACADEMIC RECORD
student_ID (FK)
GPA
Current Semester
Degree Program

STUDENT_SKILLS
student_ID (FK)
skill_ID (FK)

Form Navigation Flow is added in video