

TerpHire.com

SYSTEM DESIGN AND PROPOSAL

➤ Mission Statement

Terphire is a platform that enables Employers/Job seekers to offer/view internship and career opportunities. Every job seeker has a unique identification (user Id) along with other user details like username, email Id, contact details, address, date of birth, GPA, visa, location preference etc. Similarly, each employer on the portal has a unique employer ID with other details like employer name, industry, website and contact details.

➤ Mission Objective

- Allow the Job Seeker to view all the job/internship postings that they are eligible for.
- Allow the Employer to view all the eligible job seekers/applications received that match the criteria for job/internships posting.
- Keep a record of the Job Seekers' complete profile information.
- Maintain a record of all applications applied by the job seeker.

SYSTEM DESIGN

➤ **Brand name for project**

TerpHire.com

➤ **Business Functions & Transactions**

- Job Seeker creates a profile and is provided a unique “userID” on the job portal.
- Job Seeker can log in using their login credentials to access the portal.
- They can update their profile by adding general details and their educational background.
- They can search for Job Postings posted by employer using relevant keywords.
- Job Portal always shows a list of recommended job postings based on the job seeker’s background.
- Job Seeker can apply for multiple job postings, for each application he will be provided with a unique “applicationID” which can be used to track status of the job application.
- Employers can post multiple job postings which are available to job seekers.
- Employers can add additional specific requirements and skill set if any for any particular job posting.

➤ **Entities**

- 1) JobSeeker
- 2) Employer
- 3) Requirements
- 4) JobPosting

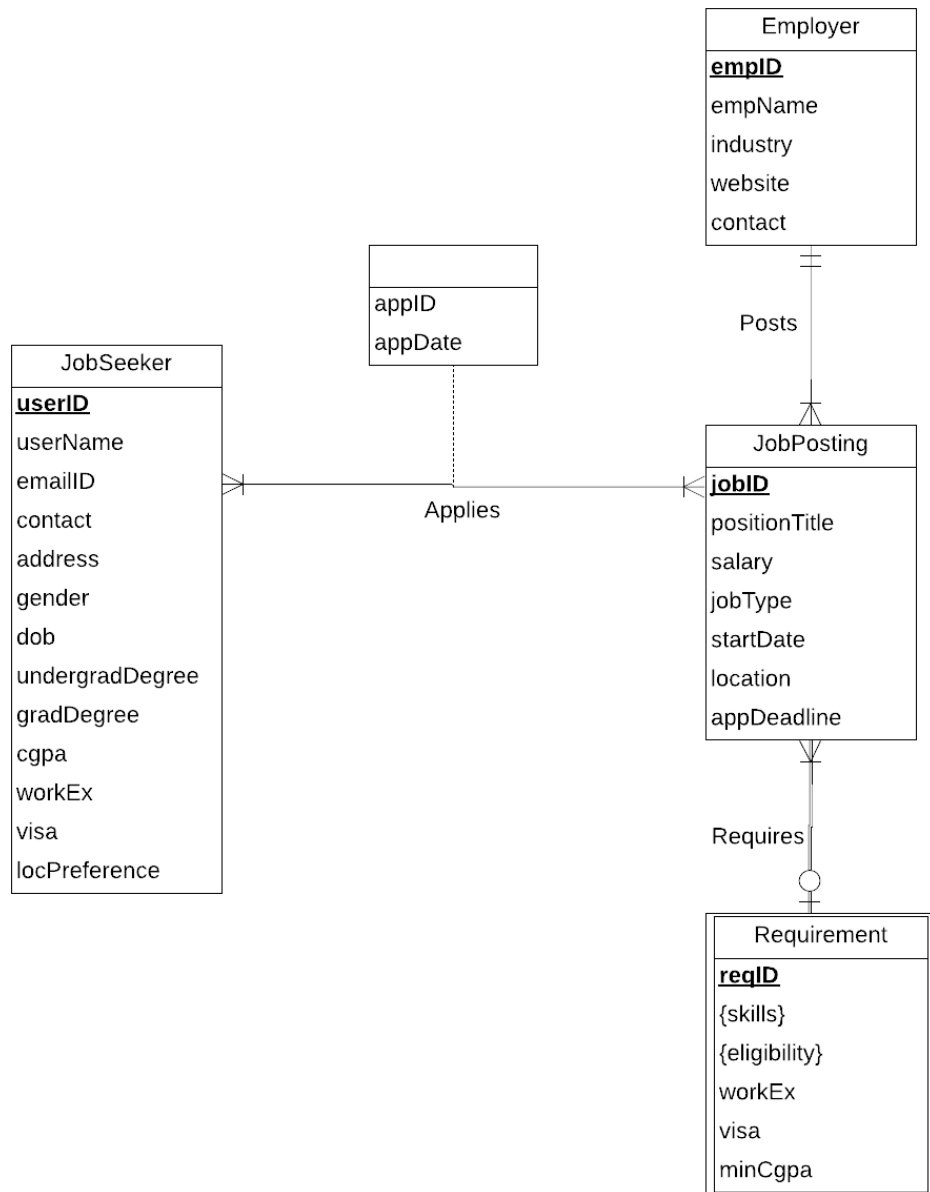
➤ **Entities, Attributes and Primary Keys :**

- 1) JobSeeker (**userID**, userName, emailID, contact, address, gender, dob, undergradDegree, gradDegree, cgpa, workEx, visa, locPreference)
- 2) Employer (**empID**, empName, industry, website, contact)
- 3) JobPosting (**jobID**, positionName, salary, jobType, startDate, location, appDeadline)
- 4) Requirement (**reqID**, visa, skills, eligibility, workEx, minCgpa)

➤ **Relationships, Attributes, Degrees :**

- Applies (appID, appDate) - Binary Relationship
 - 1 JobSeeker applies to 1 or more JobPosting
 - 1 JobPosting applied by 1 or more JobSeeker
- Posts (postDate, expDate) - Binary Relationship
 - 1 Employer posts 1 or more JobPosting
 - 1 JobPosting posted by 1 Employer
- Requires - Binary Relationship
 - 1 JobPosting requires 0 or 1 Requirements
 - 1 Requirement is required by 1 or many JobPosting

➤ **ER Diagram**



➤ Relational Schema

- Employer (**empID**, empName, industry, website, contact)
- JobPosting (**jobID**, empID, positionTitle, salary, jobType, startDate, location, appDeadline)
- JobSeeker (**userID**, userName, emailID, contact, address, gender, dob, undergradDegree, gradDegree, cgpa, workEx, visa, locPreference)
- Requirement (**reqID**, **jobID**, workEx, visa, minCgpa)
- ReqSkill (**reqID**, **jobID**, **skill**)
- ReqEligibility (**reqID**, **jobID**, **eligibility**)
- Application (**userID**, **jobID**, appID, appDate)

➤ Functional Dependency

- empID → empName, industry, website, contact
- jobID → positionTitle, salary, jobType, startDate, location, appDeadline
- userID → username, emailID, contact, address, gender, dob, undergradDegree, gradDegree, cgpa, workEx, visa, locPreference
- reqID, jobID → workEx, visa, minCgpa
- reqID, skill →
- reqID, eligibility →
- userID, jobID → appID, appDate

➤ Normalization

- Employer (**empID**, empName, industry, website, contact)
- JobPosting (**jobID**, empID, positionTitle, salary, jobType, startDate, location, appDeadline)
- JobSeeker (**userID**, username, emailID, contact, address, gender, dob, undergradDegree, gradDegree, cgpa, workEx, visa, locPreference)
- Requirement (**reqID**, **jobID**, workEx, visa, minCgpa)
- ReqSkill (**reqID**, **skill**)
- ReqEligibility (**reqID**, **eligibility**)
- Application (**userID**, **jobID**, appID, appDate)

➤ **Business Rules**

- [R1] When employer information updated in the employer table, corresponding changes should be made in JobPosting table.
- [R2] When employer information deleted in the employer table, corresponding changes to be made in JobPosting table.
- [R3] When the information in JobPosting is updated, the corresponding information in Requirement should also be updated.
- [R4] When the information in JobPosting is deleted, the corresponding information in Requirement should also be deleted.
- [R5] When an entry in the Requirement table is updated, the corresponding changes should be made in the ReqSkill table as well.
- [R6] When an entry in the Requirement table is deleted, the corresponding entry from the ReqSkill should also be deleted.
- [R7] Any changes (update) in the Requirement table should be accompanied with corresponding changes (update) to the ReqEligibility table.
- [R8] Any changes (update) in the Requirement table should be accompanied with corresponding changes (update) to the ReqEligibility table.
- [R9] If a Jobseeker updates information after submitting an application, no changes will be made to the application submitted.
- [R10] When the JobSeeker is deleted, the corresponding information in Application should also be deleted.
- [R11] When a JobPosting is updated, No changes need to be made to the Application
- [R12] When a JobPosting is deleted, corresponding Applications should be deleted

➤ **Referential Integrity**

Relation	Foreign Key	Base Relation	Primary Key	Business Rule	Constraint: ON DELETE	Business Rule	Constraint: ON UPDATE
JobPosting	empID	Employer	empID	R2	Cascade	R1	Cascade
Requirement	jobID	JobPosting	jobID	R4	Cascade	R3	Cascade
ReqSkill	reqID	Requirement	reqID	R6	Cascade	R5	Cascade
ReqEligibility	reqID	Requirement	reqID	R8	Cascade	R7	Cascade
Application	userID	JobSeeker	userID	R10	Cascade	R9	No Action
Application	jobID	JobPosting	jobID	R9	Cascade	R9	No Action

➤ **Sample Data**

○ Employer

empID	empName	industry	website	contact
E01178	Tesla Inc.	Energy	www.teslainc.com	2466543120
E04073	HSBC	Banking Services	www.hsbc.com	2087654370
E07356	Emerson	Manufacturing	www.emerson.com	2348797764

○ JobPosting

jobID	empID	positionTitle	salary	jobType	startDate	location	appDeadline
1804145	E07356	Technical Lead	\$66000	Full time	03/01/2019	San Francisco	12/15/2018
1806591	E07356	Supply Chain Analyst	\$8000	Internship	05/01/2019	Baltimore	01/31/2019
3258761	E04073	Relationship Manager	\$80500	Full time	03/15/2019	New York	12/31/2018
7458087	E01178	Operations Analyst	\$8200	Internship	05/05/2019	Dallas	02/01/2019
7455310	E01178	Software Developer	\$9800	Part time	12/15/2019	Seattle	11/25/2018

○ JobSeeker

userID	userName	emailID	contact	address	gender
11856732	John Patrick	jp@hotmail.com	1233322660	London	M
11863810	Zack Marley	zm@reddif.com	1693375632	Mumbai	M
11725800	Riya Shane	rs@gmail.com	9833322625	Paris	F
11684028	Zoe Barnes	zb@yahoo.com	1247327960	Delhi	M
11793061	Shreya Basu	sb@sify.com	1233355653	Bangkok	F

dob	undergradDegree	gradDegree	cgpa	workEx	visa	locPreference
12/07/1985	BE	ME	8.91	0	H1B	New York
05/18/1980	BBA	MBA	7.66	3	F1	London
03/22/1990	BA	MBA	7.95	0	J1	Melbourne
11/15/1986	BCom	MSBA	8.45	1	F2	Beijing
07/25/1988	BSCM	MSIS	8.76	3	F1	Dubai

○ Requirement

reqID	jobID	workEx	visa	minCgpa
R00176	1804145	2	H1B	2.8
R00651	7455310	1	F1	3.0
R00176	1806591	2	H1B	3.3
R09988	3258761	0	F1	2.9
R00651	7458087	1	F1	3.2

○ ReqSkill

reqID	skill
R00176	Microsoft Office
R00651	Python
R00651	C
R09988	Matlab
R09988	Autocad

- ReqEligibility

reqID	eligibility
R00176	MSIS
R00651	MSBA
R00651	MSIS
R09988	MSQF
R09988	MSSCM

- Application

userID	jobID	appID	appDate
11725800	3258761	7611172D	10/24/2018
11684028	1806591	5911684R	11/05/2018
11863810	3258761	5876380V	11/12/2018
11856732	7455310	7533865T	09/30/2018
11725800	7455310	7688250Y	10/24/2018