**ADDIS ABABA UNIVERSITY**

**Addis Ababa Institute of Technology**

**School of electrical and computer**

**Engineering**

**Database System Project**

Project title: - **Job Portal System (Hire and find a job)**

**phase-I**

**Group 4**

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1. **INTRODUCTION**

     Technology is constantly changing, society as we know depends on this fact. In the early year of twenty first century, it is the Internet that captured the public imagination. The statistic we found shows that 21.14 million Ethiopians use internet and this number was increased by 534 thousand which is by 2.6% between 2019 and 2020[1] so, implementing this portal system can have huge impact on minimizing the unemployment as whole.

        Nowadays it is difficult to find a job easily and in the same way there is no way to find skilled individuals easily; to meet these requirements there should be a system that fills this gap between the job seekers and recruiters. In Ethiopian most jobseekers have to search for jobs in street Notice boards and on the same way the companies post their notices in Notice board (it has to be many since they need to post it in different places) and this is not efficient because there is limited space for board and if there is any recent notice the previous notice has to be covered so it won’t last long. In terms of the effort jobseeker has to pay; searching for job this way is not efficient since it requires a jobseeker to search for every boards in person to find what he wants.

      When the jobseekers find the job that requires the skills, he/she had; they want to apply for it and the application mostly is in person. The Applicant didn’t know if they are going to accept him/her or not but he/she had to go through this step. Let say that they rejected him/her; He had searched for jobs; we know this thing is hard, and finally he/she got it but, he/she is rejected now. Here the jobseeker loses many things his time, money and moral.

      To conclude the job portal system is very essential and efficient thisdays, since it reduces the money and time jobseeker has to spent by going through the steps mentioned above. He/she only needs to have phone and internet connection; when he/she have this thing he/she can access for job vacancies posted and if the posted job requires the skill, he/she has he can apply directly and if he/she is accepted she/he will receive an acceptance notification so, it become this simple.

1. **OBJECTIVE AND AIMS**

The objective of designing the online job portal is to fill the gap between the jobseekers and companies i.e., to give the job seekers a platform for finding a right and a satisfactory job according to their qualification, preference and skill and in the same way to the companies for finding a right and a satisfactory applicant with a skill they want. This will change the manual way of operation of the job application to an automatic system and the system also provides flexibility to the job seekers.

**3. Existing System and Their Problems**

All processes in existing system are handled manually. All the work that is done in the existing system is done by the human intervention. As all the work is done manually, there were a lot of workload on placement officer and it also increases the maximum chances of errors. This is so slow and time consuming. Due to increase in number of user’s the process become more difficult. In the system. This big problem is the searching; sorting and updating of data and no any notification method available for giving information to the job seekers except the notice board.

**4. Proposed System**

The proposed system is an application which allows applicants and employers to register their details. Applicants can browse through the vacancy details that are posted and can apply for the jobs. Employers can browse through applicants resumes and select suitable candidates. Filter, Search facility for job seekers according to their required vacancy. Daily updates via notifications and other communication media. Sending resume saves effort, time and cost of job seeker. Job seeker can save jobs according to their needs. Most recent jobs are displayed on the home page.

**5. REQUIREMENT ANALYSIS**

* 1. **Job seeker side Requirements**
* **User wants to have an account:**
* To have an account there is a registration form needed to be filled to build their profile. The registration form requires “First Name, Last Name, Gender, email, contact number, user image (profile picture (optional)), password, Skill detail, Experience detail and Educational detail”.
* When a user is done filling the form they will have a resume built for them and finally he/she has an account.
* **User wants to search for a Job:**
* After joining the system, a user wants to search for jobs that fits their skill, preference and interest.

* **User want to apply for Job:**
* Once a user finds a job that fits his/her interest, preference and skill, he/she wants to apply for a job.

* **User want a response from an Employer:**
* When a user applies for a job, he/she wants a response from a company or an employer.
* The response could be either acceptance or rejection.
  1. **Employer side Requirements**

* **Employer needs to have an account:**
* To have an account an employer needs to fill the registration form that requires some information about the employer. It may require an employer name, the company name he/she is working on and the address of the company.

* **Employer wants to post a new Job:**
* After having an account an employer may want to post a job so that he/she can find a skilled applicant that fits the requirement.
* **Employer wants to see an Applicants:**
* Once they post for vacancy, they want to review the applicant’s profile.
* They want to choose the best candidate from the applicants.

* **Employer wants to send reply for applicants:**
* After reviewing the applicants profile the employer wants to send a reply message for an applicant which could be acceptance or rejection.

* 1. **Conceptual Design**

The purpose of the conceptual design phase is to build a conceptual model based upon the previously identified requirements, but closer to the final physical model. A commonly-used conceptual model is called an entity-relationship model.

* **Entity** is an object or component of data. It is basically people, places, or things you want to keep information about.
* **Attribute** is characteristics or properties of an entity.
* **Relationships**:  Indicates a certain relationship between entities.
  1. **List of Entities**

Based on the above requirements we can have the following entities:

* COMPANY
* JOB SEEKER
* JOB
* SKILL
* RESUME

For each of the above entities there are attributes which are also derived from the requirements. 

* **Company**: which is an Entity needed to store the detailed information of a company. This entity has an attribute that can describe all information needed about the company. The attributes included on this entity are Company Id, Company name, Company description and address {contact numbers, emails, location & website}. Company id is the primary key.



                  Fig.6.1 Company entity with its attributes.

* **Job seeker** is an entity that is needed to store an information about a job seeker. The attributes that are supposed to tell as about the jobseeker information’s are his/her name, job seeker id, password, contact number, resume id (which is foreign key from Resume entity and it is needed to here to help as fetch users resume which have Education detail, Experience detail) , Skill id (which is also helps us to fetch skill type and skill level of a job seeker). Job seeker Id is the primary key.



                 Fig.6.2 Job seeker entity with its attributes.

* **Resume:** the detailed information of the job seekers which are educational detail & experience detail are stored in the Resume. resume id is the primary key for this entity.



            Fig.6.3 Resume entity with its attributes.

* **Job** entity is an entity to store the job detail when a company posts a new job. These job details are Job Id, Job title, Job description, Job category, keyword (which helps the users when they want to search for job using keyword like tag), skill needed (from skill id), salary, posted date & deadline, company posted it (from company id). The primary key here is **Job Id.** The figure below shows this relation.



                       Fig.6.4 Job entity with its attributes.

* **Skill:** the detailed information of the skill of the job seeker is stored in the skill entity. Skill name & skill level are included as an attribute for this entity.



  Fig.6.5 Skill entity with its attributes.

  6.2 **Relationship between entities**

* The relation of **Company** and **Job**:
* The Company posts a new Job vacancy.
* A single company can post many new job vacancies so their relation is 1 to many.

The relation between company and job can be expressed as:

* POSTS (between COMPANY, JOBS)
* The relationship of **Job seeker** and **job**:
* The Job seeker applies for a job.
* One user can apply for many jobs so their relation is one to many.
* APPLYS FOR (between JOB\_SEEKER, JOBS)
* The relationship of **Job seeker** and **Resume**:
* The Job seeker has Resume.
* One user can only have one resume so relation is one to one.
* HAS (between JOB\_SEEKER, RESUME)
* The relationship of **Company** and **Job seeker**:
* The Company can send a notification of acceptance or rejection to job seekers and the same way receive a Notifications of application when an applicant apply for a job a company had posted.
* A single company can receive applications from many applicants and send many Notifications so we have one to many relations here.
* APPLICATION STATUS (between COMPANY, JOB SEEKER)
* The relationship of Job and skill:
* The Job requires skill.
* A single Job requires a single skill.
* REQUIRES (between SKILL, JOB)

**Relations**

* **Posts:** This relation is a relation that connects a company and job. Which has an attribute called posted data; which is used to document the date when a new job vacancy posted.
* **Application status:** which is a relation that connects a company, job seeker and job. On which there is a detail about the message that has to go either to the company or to the job seeker. We have two kind of messages one is the message from the company to the job seeker which is either acceptance or rejection message and the second one is the message from the job seeker to the company and which is the applicant’s information for posted job (the posted job id can easily be get from Job). This detail about the message to be sent is stored on an attribute called *description*.
* **Applies:** This relation connects the job and job seeker since a job seeker applies for job. The relation has an attribute called applied date which is used to document the date an applicant applied on.

**6.3 The complete ER Diagram**



Fig.6.6 The complete ER Diagram