SW Engineering CSC648/848 Spring 2021

PipeWave

"The Fast-Track from Student to Professional"

Team Lead/Front End: Jennifer Finaldi,
Team Lead Email: jfinaldi32@gmail.com
Database/Back End: Robert Cacho Ruiz
Front End: Kevin Danh
Back End: Jahir Hernandez
Github: Anthony Nguyen

Section 02, Team 04

Milestone 1-- 02/12/2021

History Table (Revision Summary):

02/12/2021: Document Created

1. **Executive Summary**:

Today's high-tech job market lacks a streamlined process of San Francisco State University (SFSU) talent to those who need it, with many students unaware of what positions exist that they would be best suited for. This leaves them on their own to find a career, with little guidance or direction to the right path for them. In addition, companies in need of talent are consuming more time and resources in the process of finding new talent because of the lack of streamlined connection to bridge the gap between the two. A need such as this will be accommodated by PipeWave, an interactive web community and database that connects University talent to various high-tech companies in the Silicon Valley area. This software is intended to create a cohesive process that quickly matches industry positions with the best candidate from SFSU.

With PipeWave, Talent Acquisition, Employee Resource Groups, and Non-profit Organizations (Industry Professionals) will be able to take advantage of some key features to assist them. The first major feature allows registration for alerts when a profile matches the description of their available roles. The second allows extensive search capabilities to find students or recent graduates who may be a good match for a particular opening. Assisting this process will be a unique feature that allows university professors to rate students on a scale of 1 - 5 (with 5 being highest) in areas such as professionalism, talent, work ethic, knowledge, and leadership. With professor insights, talent-seekers can get a better picture of who each student is, than from just a self-created resume alone. It also creates a streamlined process for professors to recommend outstanding individuals without having to deal with the time-consuming process of writing detailed letters of recommendation for each student they wish to assist.

Students will be able to upload a profile complete with their resume, demographics, videos such as project demos or introductions, contact information, head shot, relevant experience, and much more. The key advantage to students is having a strong connection between their university and the tech industry, to ensure that their hard academic work will put a spotlight on them when the time comes to transition from student to professional. It will reduce the problem of capable SFSU students and graduates getting lost in the virtual pile of resumes on various job searching websites, allowing them to stand out in a region already saturated with available talent. Students who are of underrepresented demographics will also be able to be seen easier, with the overall result of getting to the job market faster and facilitating the growth of their careers at an increased speed.

Our student startup team consists of a range of dedicated talent. Acting as team lead is Jennifer Finaldi, a senior at SFSU who aspires to get into native application development or embedded systems. Robert Cacho Ruiz is a senior computer science major who aspires to be a web developer, working on back end technologies for PipeWave such as Google Cloud and MySQL. Jahir Hernandez, is also a back end developer and a senior, who enjoys coding native applications in addition to web development. Managing remote repositories is Anthony Nguyen, a senior from the Bay Area who enjoys web development and gaming. Kevin Danh is

PipeWave's lead front end developer and aspiring game developer, working to create an intuitive user interface.

2. **Personas and main use cases**

Personas

Student - Graduating students are searching for opportunity. Each specialized with their own unique skills, they seek to be recruited to apply those set of skills and gather experience for their future endeavors. In addition, current students are often in search of internships to complete prior to graduation. The problem for those seeking internships is having a way to make them stand out in an industry already saturated with other students with the same goals. By accessing our website, they will already have a rating system in place by professors to ensure that those who work the hardest will be seen by recruiters. They would create and update their portfolio to further increase their status and knowledge for others to see and consider. Students could build relationships with their teachers and professors, as they participate actively in classes and ask questions frequently. By building good graces with others, they can be commended and endorsed by those teachers to reinforce their portfolio to better chance their recruitment rate.

Professor - Most professors are busy individuals, working hard to provide an excellent education for SFSU students. One thing they all seem to be short on is time, while not short on desire to want to help their students as much as they can. Writing letters of recommendation can be exhausting and time consuming, so with Pipewave, professors can use the intuitive rating system to ensure that star students get the recognition and recommendations they deserve. Professors shall be able to critique and analyze their students to determine whether their efforts and participation should be awarded. They can choose which students they can rate up to signify their level of skill and efforts into the work they are assigned to leave a good image. Posting comments adds another level of communication to show a professor’s own experience with these students that reflects their opinion of them. Because many of these instructors' opinions carry weight in the industries of the subjects they teach, their input could add value to a student's profile and pursuits.

Industry Professionals - Each organization is searching for talents that would best fit for the projects they are specialized in. To find new potential recruits in their work, they would use our website search feature to look for these students that match the criteria they need. In addition, they can search profiles and resumes based on certain demographics such as gender, ethnicity, childhood background, or income level. They also have the potential to create message alerts that will notify them when a candidate matches most or all of their requirements. The goals for many of these professionals is to streamline the acquisition of new talent to save time that they would dedicate to other work tasks, or simply to just increase the volume of new candidates acquired. These industry professionals need not have any coding experience or extensive internet skills to be able to utilize the site efficiently, due to the interactive intuitive interface.

Main Use Case 1: Recent graduate looking for a job

John is a recent graduate from SFSU who is looking for an entry level software developer position at Google. He has no relevant work experience, or past internships. He has a 4.0 GPA, however, and has excelled in all of his courses. Despite this, he is still having a hard time making himself seen in the industry. John decides to create an account with Pipewave, where he uploads his current resume, photos, link to his Github account, as well as some video demos of software he has created. When John created his profile and selected all of the computer science courses he has taken, along with the professors, each of his professors got a message alert from the site to inform them that John is now on Pipewave and doesn't have any recommendations yet. Because he had a good rapport with many of his professors, it didn't take long for John to get some nice words from his professors. Upon seeing his profile, a recruiter from Google takes note of how well John is spoken of by his instructors and sends him a message to reach out to him about some job opportunities. John is happy.

Main Use Case 2: Current student looking for internship

Mark is currently finishing up his final year of college, where he is preparing to soon be out into the workforce. Alongside his current classes and studies, he has enough free time to further build his experience in the field he wishes to work in. To do so, he uses Pipeave to upload his current portfolio of his current status as a student and his knowledge of his field. Mark recalls how he left good impressions of some previous teachers he had during his college years and comes into contact with them. He mentions to them Pipewave and how it provides opportunity for upcoming students to be scouted and recruited for their fields. The teachers join in on Pipewave and provide their generous and positive feedback of Mark to further boost his potential to scouters. Soon, Mark received a message from an organization that is looking for people of his skillset that will provide him with in hand experience and knowledge.

Main Use Case 3: Recruiter looking for overall talent

Linda is a recruiter from Amazon tasked with a search for new and upcoming talent to fill positions within the Amazon cloud computing service. They want to find future Amazonians to learn and maintain the software responsible for Amazon’s success. Someone mentions Pipewave, a new exhilarating platform that offers a seamless connection to new graduates and students from SFSU fit for the role. She signs up for Pipewave and is immediately greeted with a massive list of future potential talent and is able to search for specific tags capabilities and ratings. She finds a candidate that she’s interested in, and views their profile. On the page she finds that Jeff is a student with a 2.8GPA, but has many endorsements by professors and even other companies. She clicks the notify button and it let’s Jeff know that Linda is interested in an interview.

Main Use Case 4: Employee Resource Group representative looking for a certain demographic

Steve is a representative for an employee resource group for a AAA game studio in the bay area. He is in need of a bright student or recent graduate who also happens to have a disability, in order to fill a diversity quota at his company. He logs into his account on Pipewave and does a search for profiles, filtering by the "disability" demographic tag. He discovers the profile of Susie, a graphic design major with a 3.2GPA who happens to be a paraplegic. Little known to Steve, Susie was having a lot of trouble finding a job without having a 4.0GPA, with her resume often getting overlooked by recruiters for jobs. Because Steve was able to filter by a demographic that made Susie stand out, she was able to get her dream job, and Steve was able to fill that quota.

Main Use Case 5: Non-profit Organization seeking top professor rated student from a certain major

Brenda works for a non-profit organization that helps inner city homeless youths. She is seeking a student or recent graduate from SFSU who is a communications major emphasizing in conflict resolution. Her bucket list for the ideal candidate includes someone who has experience with community service, a 3.0 GPA or above, and experience acting as a leader for a group of over ten people. Because her bucket list is very specific, it made sense for her to create an alert on the Pipewave software that would send her an in-site message notification should any student create a profile with most of these listed. Brenda no longer had to scour sites like LinkedIn every day, and was able to save herself enough time to devote to other projects for the organization, while still managing to find a candidate for this position in the same average time frame that it took her to fill other similar positions prior to using Pipewave. This site was able to save her time and increase company productivity.

3. **List of main data items and entities**

1. *Default Accounts*: User able to post their resumes for outreach, essential to website
2. *Professor Accounts*: User able to review previous students to enhance their outreach, review students
3. *Professional Accounts*: Industry professionals seeking talent, able to contact accounts seeking new opportunities, essential to website
4. *Database for contact information*: email, username, first name, last name, hashed password, usertype, date created, title
5. *Messages* stored for direct messages, essential for contacting other users on the platform.
6. *Reviews*: Stores data relevant to student reviews from professors
7. *Photos:* User profile photos

4. **Initial list of functional requirements**
    1. *All users* from verified schools or companies shall be able to register and create accounts on the website
    2. *All users* shall be able to search for jobs and or requirements based on respective category
    3. *All users* shall be able to update their profile information
    4. *All users* shall be able to view other's profiles
    5. *All users* shall be able to view reviews left on employer or employee profiles
    6. *Students* shall be able to upload resumes to their profile in a pdf format
    7. *Students* shall be able to upload videos to their profile in supported video format
    8. *Students* shall be able to enter any demographics, experience and education to customize their profile
    9. *Students* shall be able to register and get alerts for matching employer profiles in order to prepare for interviews
    10. *Students* shall be able to follow other students or companies that they are interested in without sending notifications
    11. *Students* shall be able to leave recommendations for other students
    12. *Industry Professionals* shall be able to search for new graduates or students by major and demographics
    13. *Industry Professionals* shall be able to register and get alerts for matching student or new graduate profiles
    14. *Industry Professionals* shall be able to flag or notify a candidate that they are interested in interviewing through the press of a button
    15. *Industry Professionals* shall be able to follow profiles of candidates that they may be interested in without notifying them
    16. *Industry Professionals* shall be able to search for professors by demographics or subjects
    17. *Industry Professionals* shall be able to leave recommendations on students or graduates
    18. Professors shall be able to rate students on a scale from 1-5 based on different aspects such as responsibility, teamwork, leadership, etc.
    19. Professors shall be able to enter recommendations for students
    20. Professors shall be able to enter any demographics, experience and subjects that they teach to customize their profile

5. **List of non-functional requirements**
    1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
    2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers

3. Selected application functions must render well on mobile devices
4. Data shall be stored in the team's chosen database technology on the team's deployment server.
5. No more than 100 concurrent users shall be accessing the application at any time
6. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
7. The language used shall be English.
8. Application shall be very easy to use and intuitive.
9. Google maps and analytics shall be added
10. No e-mail clients shall be allowed. You shall use webmail.
11. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
12. Site security: basic best practices shall be applied (as covered in the class)
13. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
14. The website shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Spring 2021. For Demonstration Only" at the top of the WWW page. (Important so not to confuse this with a real application).

6. **Competitive Analysis**

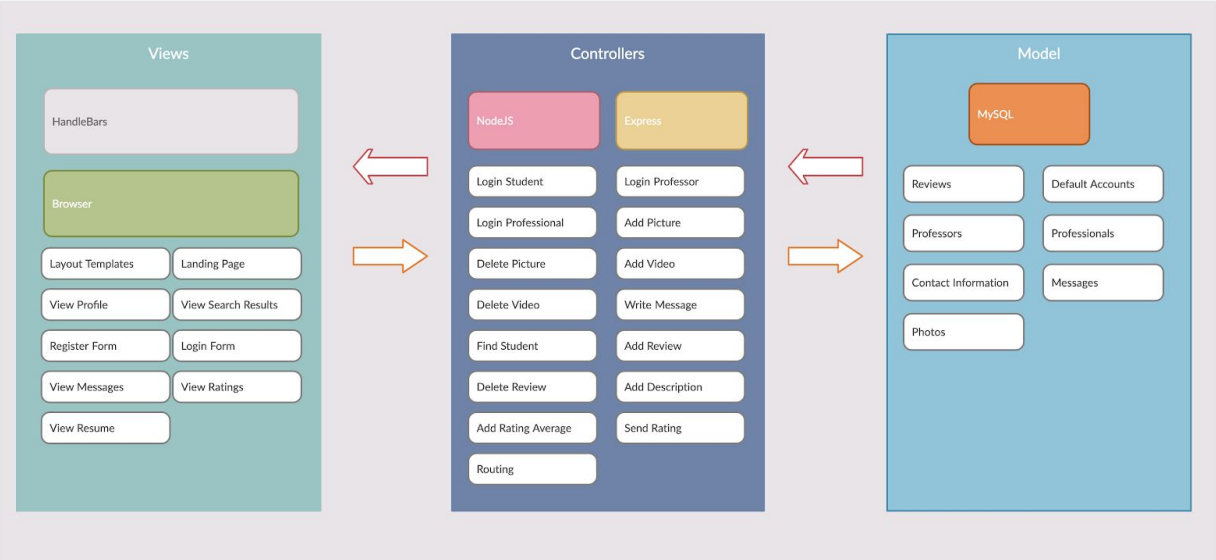
Features	Indeed	Handshake	LinkedIn	Pipewave
Notifications	+	+	+	++
Direct Messaging	+	+	+	+
Text Search	+	+	+	+
Boolean Search	++	+	+	+
Rating System	-	-	-	+
Professor Rating	-	-	-	+

Our web application will be targeting specifically students at SFSU, since most of our competitors have been designed to target most if not all users searcher for work. We want our application to be designed to specifically help students and alumni from SFSU connect to companies searching specifically for new graduates or students at SFSU. Our platform will be developed in a way that allows us to transfer this framework to other universities searching for the same use. Our application will take key features of most job search sites and really gear

them toward aiding companies in search, making the process of search for candidates a silky smooth experience.

7. **High-level system architecture and technologies used**

Structure: MVC System Architecture



Technologies Used:

Stack:

Front end: Handlebars, front-end Javascript, HTML, CSS

Back end:

Framework: ExpressJS

Javascript Runtime Enviroment: NodeJS

Database: MySQL

APIs:

- API to upload picture
- API to delete picture
- API to add rating to rating average
- API to delete student reviews
- API to add student reviews
- API to add schools
- API to add/delete students to schools
- API to write student bio
- API to log in as a student
- API to log in as a professor

Supported Browsers: Chrome, Safari, Firefox

Systems: All systems capable of running aforementioned supported browsers

8. **Team and roles**:

Team Lead:	Jennifer Finaldi
Github Manager:	Anthony Nguyen
Database Manager:	Robert Cacho Ruiz
Front End Manager:	Kevin Danh, Jennifer Finaldi
Back End Manager:	Jahir Hernandez, Robert Cacho Ruiz

9. **Checklist:**

- Team found a time slot to meet outside of the class -- **DONE**
- Github master chosen -- **DONE**
- Team decided and agreed together on using the listed SW tools and deployment server -- **DONE**
- Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing -- **DONE**
- Team lead ensured that all team members read the final M1 and agree/understand it before submission -- **DONE**
- Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents, etc.) -- **DONE**