

We Analyzed nearly 30,000 Jobs of 24 Top U.S. Banks to Accelerate Your Winning in Fintech Era

Summary	This report analyzed key fintech categories and fintech positions in 24 U.S. banks, then made insights and predictions about fintech hiring trends and the core competitiveness for job seekers.
URL	fintech-hiring-trends-24usbanks
Category	Web
Environment	web, kiosk, io2016, pwa-dev-summit, pwa-roadshow, chrome-dev-summit-2016, io2017, typtwd17, gdd17, cds17
Status	Version1.0
Feedback Link	https://github.com/googlecode/your-first-pwapp/issues
Author	Zigeng Fu, Hao Cui, Yimu Jin, Ziyan Zhu

[Overview](#)

[Instruction](#)

[Data Preparation](#)

[Fintech Job Categories](#)

[Feature Engineering](#)

[Automation and Dockernization](#)

[What Insights we Figured out?](#)

[Fintech Keywords and Categories](#)

[Fintech Keywords](#)

[Fintech Job Categories](#)

[Job Distribution in Categories](#)

[Fintech Job Distribution in 24 Banks](#)

[Fintech and Non-fintech Job Proportion](#)

[Fintech Job Offering in 24 Banks](#)

[Suggestions for Fintech Job Seekers](#)

[Potential Hot Fintech Areas in the Future](#)

[Suggestions for Job Seekers with Different Background](#)

Overview

Instruction

Based on the insights of the key fintech areas and hiring patterns of BNY Mellon and Capital One, two of the top U.S. banks, this project continue to analyze fintech hiring trends in banking industry with data from top 24 U.S. banks to come out scientific findings and predictions.

Data Preparation

After collecting original job posting data of the 24 banks and coming out a final fintech keywords list, we cleaned the invalid data, then did the mapping between keywords and jobs. The dataset reflecting the mapping relationships was then as the input of our clustering model.

Fintech Job Categories

Using the mapping relationship dataset, we formed 10 job clusters using K-means method. Each job cluster has the weight of 100 keywords, and we took out the highly weighted keywords as the features of each cluster. We then identified the clusters whose 'fintech' keyword has a high weight as fintech clusters, so there are 5 fintech clusters out of all 10 job clusters, we manually named the clusters by their key features. The 5 fintech clusters we formed are:

- Investment Banking
- Risk Management
- Software Engineering
- Digitalization
- Data Analysis

Feature Engineering

Based on the formed 10 clusters with features, we did the feature engineering using Logistic Regression Model. By inputting our job-keywords mapping dataset into the model, we determined if a job is related to fintech, and assign it to the related fintech category if it is a fintech job. Our model performed well with the accuracy of nearly 98%.

Automation and Dockernization

To automise the workflows above, we build a pipeline that can automatically take data from the 24 companies and compile a single dataset with added features, then input the dataset to our model to classify the jobs. We used Luigi to build the pipeline and then dockernized the pipeline to provide repeatable development, build, test, and production environments.

What Insights we Figured out?

We finally found the following insights by analyzing our data output:

- Fintech job contribution in 24 banks
- Fintech related job hiring trends
- Number and proportion of fintech related jobs in each of 24 banks
- Fitech categories with most jobs and least jobs
- Recommendations for job seekers in fintech area

Fintech Keywords and Categories

Fintech Keywords

We extracted top 100 keywords in fintech area from 4 authoritative reports from [World Economic Forum \(WEF\)](#) using 3 different methods: Word Count, TF-IDF, and Text Rank, and then summarized the outputs to come out the fintech keyword cloud as Chart 1 shows.

- Customer Management
- IT Services

Notice that the IT Services cluster is a non-fintech cluster because the jobs in it are most traditional technical jobs, such as java developer, web developer, UI design, etc, which needn't financial knowledge.

Job Distribution in Categories

To find the job distribution, we obtained the job number of the 10 categories, and the proportion is shown as Chart 2.

[Cluster Percentage]

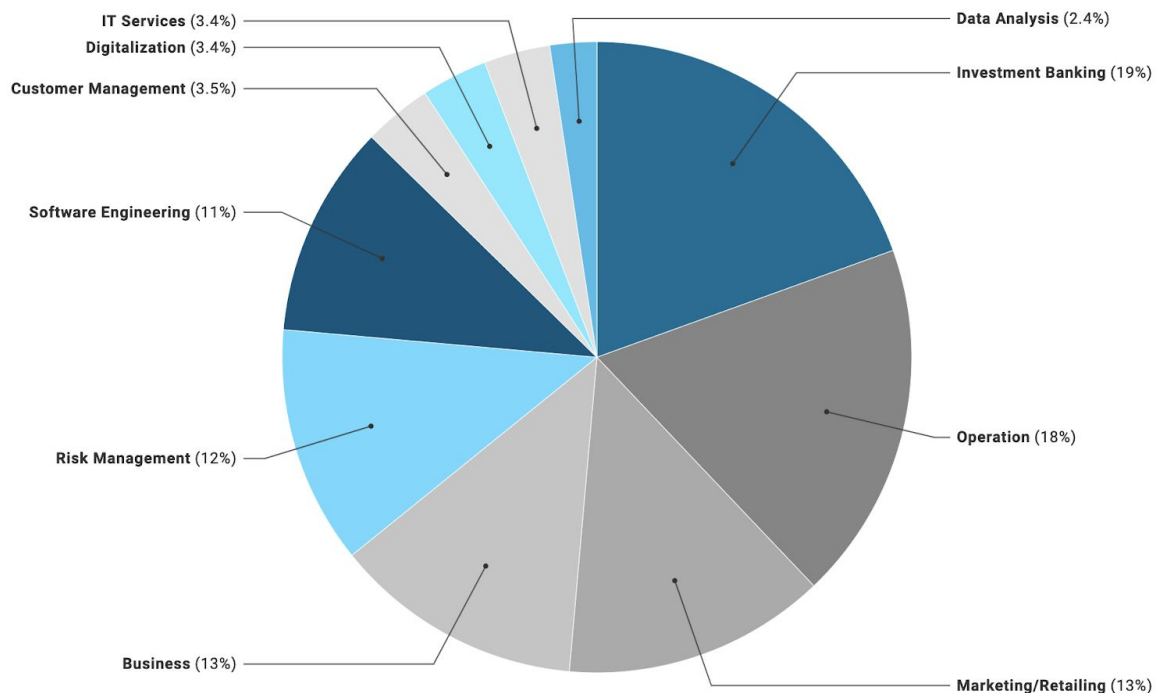


Chart 2: Team#6.Created with Datawrapper

The blue sections in the pie chart above represent fintech categories, and the grey ones represent non-fintech categories. According to our final job categories dataset, we found the qualification of jobs in fintech categories are usually the combination of knowledge or insight from both finance side and technology side. So the fintech categories are not only focus on the areas as their names show.

Among the 5 fintech categories, Investment Banking takes 19%, followed by the Risk Management and Software Engineering, which are 12% and 11%. Digitization and Data Analysis are relatively less, take 3.4% and 2.4% respectively.

Fintech Job Distribution in 24 Banks

Fintech and Non-fintech Job Proportion

Chart 3 below shows the fintech job and non-fintech job distribution among the overall 29,739 job postings from 24 banks. We found that the number of fintech related jobs is 14,939, which occupies more than 50% of all jobs.

[FinTech and Non-FinTech Distribution]

■ FinTech ■ Other

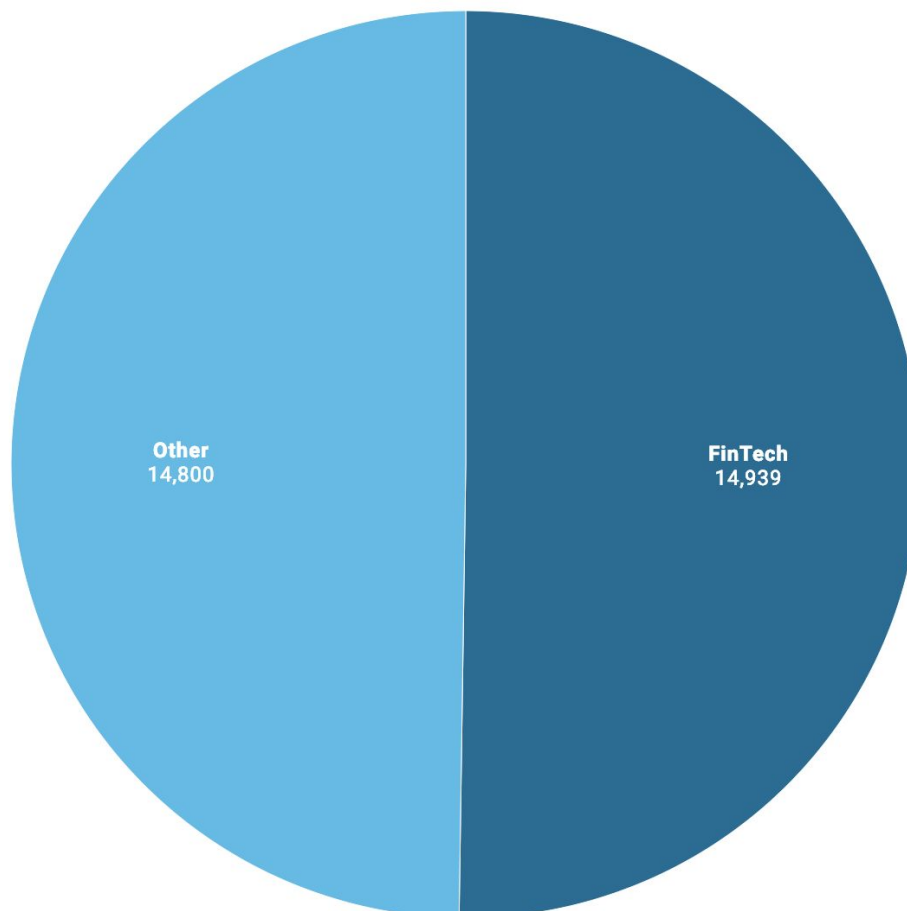


Chart 3: Team#6.Created with Datawrapper

Fintech Job Offering in 24 Banks

We came out the data of the fintech job offering in top 24 U.S. banks, shown as Chart 4 and Chart 5 , which stand for the fintech job numbers and proportion respectively.

[Fintech Job Number]

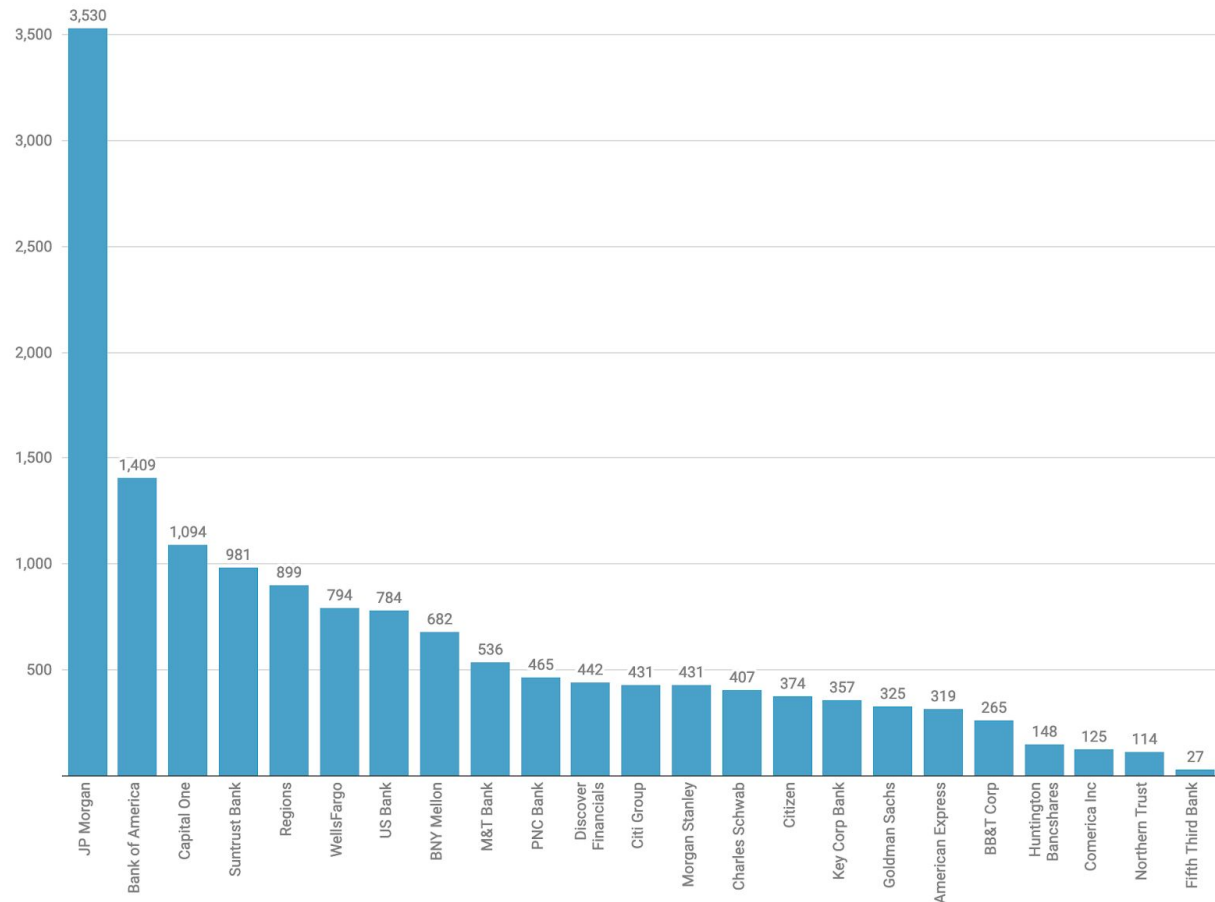


Chart 4: Team#6.Created with Datawrapper

[Fintech Job Percentage]

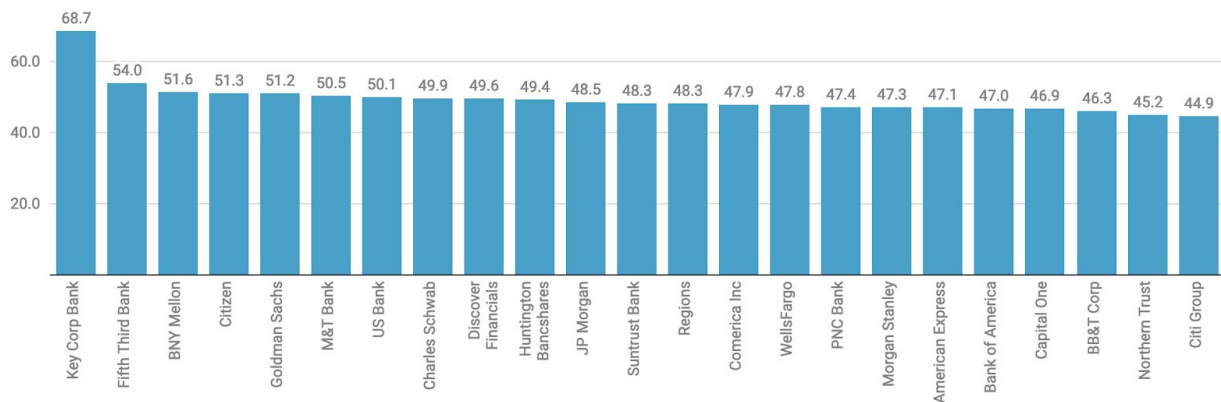


Chart 5: Team#6.Created with Datawrapper

Based on the job numbers and fintech proportion, we figured out the top 5 banks whose jobs are more suitable for fintech job seekers to focus on applying, they are:

- JP Morgan
- Bank of America

- Capital One
- Suntrust Bank
- Regions

These 5 banks are offering more jobs related to fintech and transforming from pure traditional financial services to the digital financial services or fintech services. So for the job seekers, they have more probability in job obtaining and have better future career development potentiality in fintech area.

Suggestions for Fintech Job Seekers

Based on the feature words of our fintech clusters, we came out a word cloud, shown as Chart 6, to visualize the key skills in fintech area.



Chart 6: Team#6.Created with Datawrapper

According to the chart, it is obvious that the combination of both financial knowledge and technical knowledge is very important in banks nowadays, and it is also the hiring trend and preference of the companies in financial industry. Based on our findings, we can come out some insights on the potential hot fintech areas and give some

suggestions for the job seekers with different background to accumulate their success in fintech era.

Potential Hot Fintech Areas in the Future

- **Data:** with the use of data analytics and big data technologies, financial companies will be able to make scientific strategic decision, and come up more profitable financial products to give customers more investment options.
- **Security:** with the large amount of online transactions and payments, security will have to become top concerns to maintain data and assets protection to gain customers' trust.
- **Digitalization:** financial companies are taking advantage of digital payments, cardless payments, mobile deposits, etc. The use of AI also promote the efficiency on analysis. Enterprises are also building integrated digital platforms for better inner resource management.
- **Insurance and Risk Management:** insurtechs companies are redefining customer experience through innovations such as risk-free underwriting, on-the-spot purchasing, activation, and claims processing, etc.

Suggestions for Job Seekers with Different Background

- For people in **traditional finance industry**, they need to build their skills in data analysis using some technical tools or programming languages like python, to implement the financial model and figure out result in a more efficient and intelligent way.
- For people in **IT industry**, they need to accumulate some financial basic knowledge like investment management, customer oriented financial services, and risk management. It will help them succeed in fintech area because all analysis or automation using technology in the finance industry is to achieve better financial business performance, so the understanding of the logic of financial business is vital.
- For people who are already in **fintech industry**, it is better for them to gain more experience in digital transition projects and fintech product management to provide the customers with intelligent solutions.