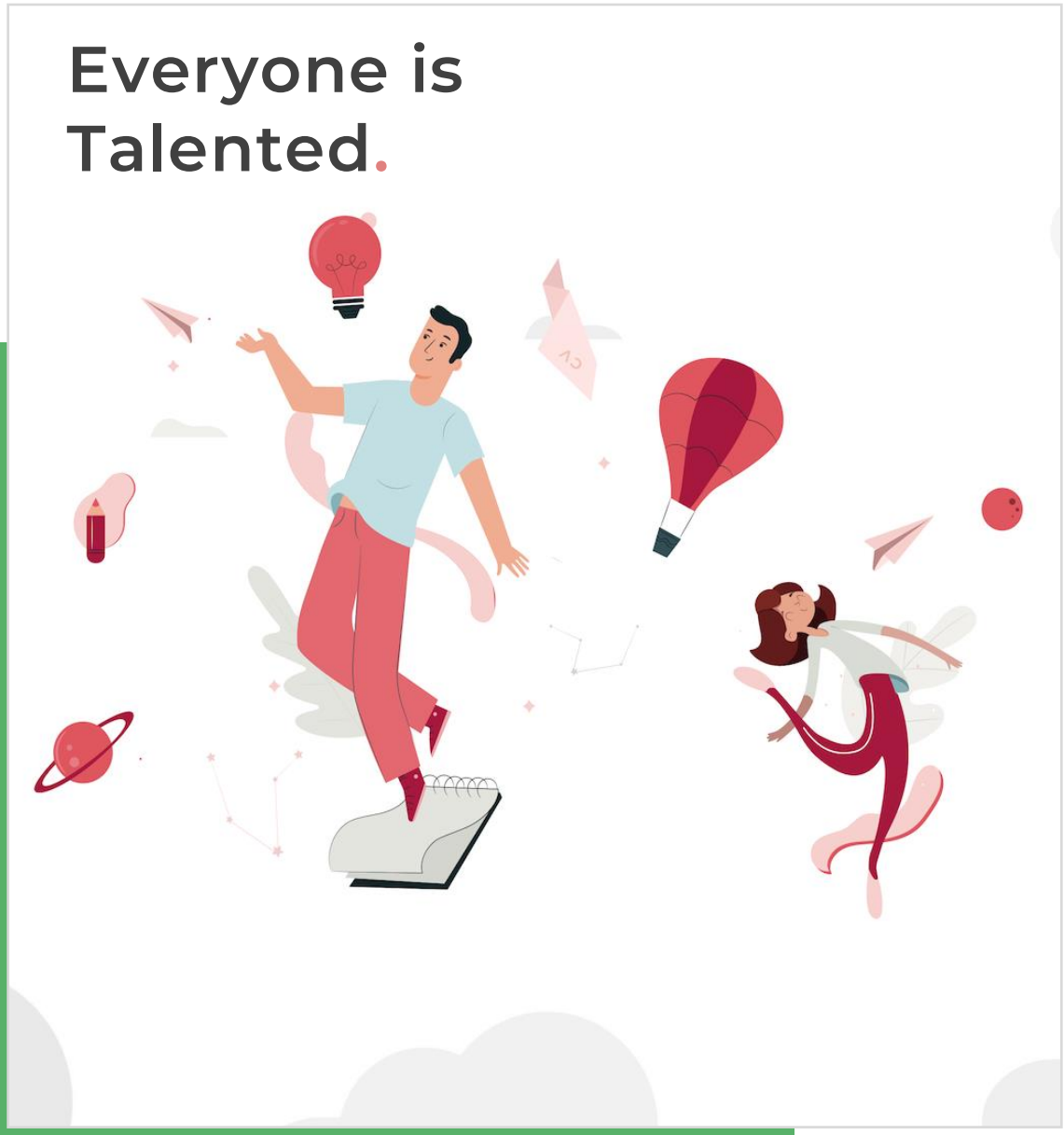
UNDERSTANDING TECH TALENT CRUNCH IN FINANCIAL SECTOR

BY **JOBTECH**
FOR **SINGAPORE FINTECH ASSOCIATION**



JobTech.

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Executive summary

Tapping on big labour market data and proprietary natural language processing models, JobTech examines one of the main criteria of mismatch of skills between local tech talents and foreign tech talents in the banking and finance sector. Six technology roles are identified from the in-demand technology roles in the banking and finance sector for the purposes of the analysis.

JobTech finds that within banking and finance sector in Singapore, 1) local tech talents' skills are a good fit to the tech jobs 2) foreign tech talents' have a slight advantage in terms of skills fit. These are examined by comparing the top skill requirements of the identified tech roles with the skill sets of local and foreign tech talent profiles and observing the level of fit between. For the skill differentials, notable skill differentials are identified. For example, hybrid cloud is one of the top skill requirements that was found to be equipped by more foreign talents than local talents.

JobTech concludes that though skill gaps are present, the numerous training and schemes available can help local talents become a better fit to the banking and finance sector tech roles. Additional information is also provided on the key skills to focus on for the banking and finance technology roles to provide additional visibility for job seekers to take actionable steps towards closing the skill gaps.

This study focuses on skills fit as one of the main criteria in hiring decision. A follow up study to enhance the rigour of this study can focus more on the softer aspects during the evaluation of any job seeker, where additional insights can be derived from understanding the relative importance of soft skills and technical skills for technology roles in the banking and finance sector.

Objective of study

It has been observed that there are increasing sentiments of talent crunch in the finance sector, where a huge portion of the demand is with technology related roles and employers are facing difficulties getting local talents to fill up the demand. One of the main reasons cited was the mismatch of demand and supply and hence the need to continue relying on foreign talents to address the crunch. However, there remains a gap in understanding what exactly the mismatch entails.

This study aims to share the extent of the skill mismatch (if any) between demand and supply of technology roles within the finance sector and offer insights on the role of educational institutions on bridging the skill gaps.

Methodology

1. With the massive pool of jobs information, JobTech runs its proprietary Natural Language Processing (NLP) engine to extract consistent skills information. The same engine is also run through our pool of talent profile information as well as courses information to extract out the skills possessed by them. In this way, the skills can be compared directly as both skills information sources are generated by the same JobTech's taxonomy definition.

2. Using the employer names listed in job advertisements, we are able to classify them into appropriate sectors eg. Finance sector. We then aggregate all of the Finance sector jobs together and sort them into the different job roles. In order to do so, we employ similarity comparisons between the job titles as well as the skills requirement of each job advertisement to properly classify them into the correct job roles. Coupled with the use of the job advertisement's date posted information, we are then able to a list of top tech jobs in the Finance Sector.

3. Subsequently, as all the job advertisements are classified into the different sectors and job roles, we are able to summarise a representative job description for each of the Top 6 Finance Sector tech jobs.
   Each of the jobs also has skills information extracted using the NLP engine and hence, aggregated skill requirements could be generated for each of the Top 6 Finance Sector tech jobs.

4. We are able to segregate our talent pool into local and foreign talent pool (via various methods such as employment pass, citizenship status and place of residencies), and then into their job roles, and finally compare them with the Top 6 Finance Sector tech jobs to find out the differences in skill sets between local and foreign talents. As we are able to bucket talent pools into their respective job roles, we're also able to have a sense of the % ratio of local and foreign talents in each job function.

5. Lastly, we have courses/modules data of institutes of higher learning where after running our NLP engine, we're able to compare the skills with the Top 6 Finance sector tech jobs and understand the gaps.

Identification of technology roles

Utilising the big labour market data gathered by JobTech, we analysed job advertisements from banking and finance companies in Singapore and selected the top 6 technology roles that are in demand. As these technology roles are the most demanded, these roles would provide good representation of the tech talent crunch situation in Singapore and analysing these roles can provide good insights to the extent of skills mismatches.

Skill gaps analysis

Technology Role	% of skill requirements (top 30) that local talents have better fit
Data Engineer	40.0%
Cloud Engineer	40.0%
Devops/Site Reliability Engineer	56.7%
Full Stack Developer	40.0%
Front End Developer	36.7%
Back End Developer	36.7%

Table 1: Percentage of top 30 skill requirements that local talents have better skills fit than foreign talents

Across the 6 identified roles, the top 30 skill requirements[1] are presented to provide a deeper understanding of the demands of employers in the finance sector. In general, there are more skills that lesser proportion of local talents have a skill fit as compared to foreign talents, with the exception of the devops/site reliability engineer role.

Technology Role	% of skill requirements (top 15) that local talents have better fit
Data Engineer	53.3% (+13.3%)
Cloud Engineer	33.3% (-6.7%)
Devops/Site Reliability Engineer	66.7% (+10.0%)
Full Stack Developer	46.7% (+6.7%)
Front End Developer	26.7% (-10.0%)
Back End Developer	33.3% (-3.4%)

Table 2: Percentage of top 15 skill requirements that local talents have better skills fit than foreign talents

[1] In general, top 30 skills provides overview of the top skill requirements while capturing variations of additional skillsets required by organisations with different needs

However, if we were to focus at the top 15 skill requirements[2], local talents in data engineering and full stack developer roles becomes more comparable to foreign talents in terms of skills fit. For devops/site reliability engineers, local talents are more desirable in terms of skills fit. However, for cloud engineering, front end developer and back end developer roles, less local talents have a fit to these skills as compared to foreign talents.

Notable skill differentials

Technology Role	Skill	% differential between local talents and foreign talents with a skill match
Data Engineer	Big Data	-6.9%
Cloud Engineer	Hybrid Cloud	-13.2%
Devops/Site Reliability Engineer	Performance Engineering	-6.1%
Full Stack Developer	React.js	-9.5%
Front End Developer	Data analytics	-17.0%
Back End Developer	Test Driven Development	-3.5%

Table 3: Notable skills that lesser proportion of local talents are a fit with compared to foreign talents

Focus on differential skill gaps to gain an edge

To maintain competitiveness over foreign talents, local talents can look into up-skilling in certain skill sets. In table 3, a skill is highlighted for each role in which locals can consider prioritising their up-skilling efforts.

Big data becomes increasingly important

With rapidly increasing volume of data generated globally, it is no surprise that the understanding of big data has joined the top 15 most important skills required of a data engineer. The data engineer has to be able to build and maintain the organisation's data infrastructure to handle massive amount of data, and ensure data pipelines are efficient and optimised.

Hybrid cloud the way to move forward

For cloud engineers, the skill gap analysis has revealed that local talents would benefit from acquiring proficiencies in different cloud providers offerings to be a better skills fit. Furthermore, although hybrid cloud is not within the top 15 skill requirements yet, the demand for it has been growing steadily and is expected to

[2] Top 15 skills highlights the core skills required of job roles.

become more important and it will be even more crucial to be well-versed with different technology stacks.

Different skill strengths and different demand

Within full stack developer roles, in demand skills like react.js are highly sought after within the finance sectors. Although local talents are comparably more familiar with Angularjs than their foreign counterparts, the demand for the skills is lower than that of react.js. To have a better skills fit, picking up react.js is definitely an area local talents can look into learning.

Data analytics importance in front-end development

Front end development has evolved from regular web development and now requires good knowledge on data analytics, especially when the developers need to reconcile effective visualisations with the power of data during development.

Bridging skill gaps

Institutes of Higher Learning (IHLs) in Singapore has done well in training up local talents for tech roles demanded in the finance sector.

Technology Role	% of skills in-demand taught by IHLs	Examples of skills not taught
Data Engineer	80.0%	Apache spark, Teradata, Apache Hive, Scala
Cloud Engineer	83.3%	Aix, Ansible, Kubernetes, Terraform, Docker
Devops/Site Reliability Engineer	76.7%	Elkstack, Jira, Kubernetes, Docker
Full Stack Developer	90.0%	React.js, Spring Framework, Docker
Front End Developer	76.7%	React.js, Redux, Webpack, NPM
Back End Developer	90.0%	Spring Framework, Code Review

Table 4: Percentage of top 30 skill requirements that are taught in IHLs

IHL's curriculum are effective but foreign talents has a slight edge in skills fit

By comparing the skills taught within the curriculum in the IHLs against the technology job skill requirements, we find that more than 75% of the top 30 skills required of the identified tech roles are already being taught, suggesting that IHLs' curriculum are effectively training up graduates with skill sets that largely fit the job requirements despite the three to four year time lag. This is corroborated by the 2020 Graduate Employment Survey (GES), where IT degree programs yielded one of the highest employment rates[3], suggesting that the skills sets of the graduates are ideal for the employers. However comparatively, foreign talents still have a slight edge in terms of skills fit, with the gaps focused on enterprise software and tools.

Tapping on additional training opportunities outside of curriulum

Students who are still studying in IHLs should take initiative to up-skill themselves through courses outside of the curriculum. There are a wide variety of learning resources and available courses in Massively Open Online Courses (MOOCs) and SkillsFuture portal and these courses complement the fundamental skill sets taught in IHLs.

In addition, most of the skills that are not offered in the curriculum can be learnt on the job. Schemes like SGUnited Traineeship help students increase access to

[3] Dentistry and Education (NIE) are the top with 100% and 99.4% employment rate. Information & Digital Technologies followed after at 94.8%.

job opportunities and allow them to gain exposure to in demand skill sets outside of curriculum (eg. Enterprise software and tools), hence increasing the employability of the students when they graduate and join the workforce.

Conclusion

In this analysis, we have found that there are indeed skill requirements that lesser local talent can fulfil as compared to foreign talents in technology roles within the finance sector. However, we also find that despite this, local graduates from institutes of higher learning are already well equipped with the skills required of the six in demand technology roles in the banking and financial sector.

For the skills gaps shown in table 3, there are many learning resources available publicly that provides opportunities for continuous learning. Taking initiatives to increase exposure to the changing job and skill requirements will help bridge existing skill gaps and make any potential job seeker become more sought after.

The focus of this analysis has been on skill gaps and while skill gaps is an important factor during any hiring decisions, it is also not the only factor. A natural follow up to this analysis will be to uncover and analyse other potential reasons that could impact the eventual hiring decisions of organisations within the banking and finance sector. For example, the exploration of softer attributes of both local and foreign job seekers can help enhance understanding of the relative importance between display of soft skills and technical skills in the hiring process.

Annex

1. SUMMARY STATISTICS

Technology Role	Supply of local talents	Supply of foreign talents	Demand for talents
Data Engineer	95	98	1036
Cloud Engineer	51	56	795
Devops/Site Reliability Engineer	93	97	1149
Full Stack Developer	84	60	886
Front End Developer	56	40	276
Back End Developer	299	238	539

Table 5: Descriptive summary of data used in the analysis

In the study, both local and foreign talents that has experience in the identified roles in the finance sector are analysed. The supply distribution between local and foreign talents are relevantly equal with the exception of full stack developers, front end developers and backend developers, with approximately 25% to 40% more local talents than foreign talents.

Technology Role	Minimum Experience	Maximum Experience	Median Salary
Data Engineer	5.2 (±2.5)	6.7 (±2.7)	5900
Cloud Engineer	5.0 (±2.0)	6.0 (±1.5)	6800
Devops/Site Reliability Engineer	4.2 (±2.6)	5.0 (±2.1)	6200
Full Stack Developer	5.1 (±1.8)	5.8 (±2.2)	5800
Front End Developer	3.8 (±1.1)	6.3 (±1.5)	5500
Back End Developer	4.8 (±2.3)	6.6 (±1.7)	5600

Table 6: Descriptive summary of job requirements in finance sector

For the 6 highlighted roles in the finance sector, generally experienced candidates are preferred with years of experience requirements ranging from 3 to 9 years.

- On average, the minimum years of experience required for front end developers tend to be lower 3.8 and data engineers to be the highest at 5.2
- Experience requirements fluctuate the most for data engineers where there demand for talents in this area range from junior roles to relatively senior roles

Cloud Engineers command the highest median salary, which is aligned with the general higher experience requirements and the increased demand towards cloud computing and infrastructure.

2. TECH ROLES REQUIREMENTS

This section here provides an overview of the skill requirements of tech roles in the finance sector together with the representative job description.

2.1.1 Top skill requirements of Data Engineer

Technology Role	Top Skill Requirements
Data Engineer	1. Data Engineering 2. Big Data 3. Data Analytics 4. SQL 5. Banking Knowledge 6. Apache Spark 7. Hadoop 8. General Programming 9. Database Management 10. Technology Management 11. Extract, Transform, Load (ETL) 12. Teradata 13. Python 14. Java 15. Regulatory Compliance

2.1.2 Representative job description of Data Engineer

Technology Role	Description
Data Engineer	Responsibilities: - Influencing role to product specifications, build and support a reliable enterprise data warehouse to meet the development and maintenance requirements of systems/platforms - Develop and implement technical best practices for data movement, data quality, data cleansing, and other ETL-related activities. - Develop and ensure adherence to locally defined standards for all developed components. - Maintain “common code” libraries, so objects can be shared and folders for all Environments (Dev, System Test and Production), Code Check-In/Check-Out procedures and assists in managing SIT/DEV. - Use the SSIS platform to extract, transform, and load data.

	- Develop, test, integrate, and deploy ETL routines using ETL tools and external programming/scripting languages as necessary. - Write and maintain unit test cases - Design ETL processes and develop source-to-target data mappings, integration workflows, and load processes. Requirements: - Experience with the Data Warehouse architecture, design, development, and deployment of ETL processes using SSIS and development through Microsoft Visual C# - Knowledge in SSIS, SQL, Kafka, Data Modeling, design & analytics - Good knowledge of BI architecture, data warehousing concepts, and data vault model - Strong knowledge of Python, SPARK, Java Scala, HIVE and Beeline with hands on experience - Knowledge and experience of web service development using Java is an advantage - Knowledge and experience with Control M Scheduler is a plus - Knowledge and experience with DevOps practice and tools is a plus - Bachelor's degree in Business, Computer Science, Management Information Systems, Engineering, or a related field

2.2.1 Top skill requirements of Cloud Engineer

Technology Role	Top Skill Requirements
Cloud Engineer	1. Cloud Technology 2. Cloud Computing 3. Amazon Web Services 4. Technology Management 5. Unix/Linux 6. Cloud Infrastructure Management 7. Banking Knowledge 8. Microsoft Azure Proactive 9. Regulatory Compliance 10. Web Services 11. Troubleshooting 12. General Programming 13. Devops 14. Process Analysis 15. Python

2.2.2 Representative job description of Cloud Engineer

Technology Role	Description
Cloud Engineer	Responsibilities: - This Cloud Engineer role focusing on migrating applications to public and private cloud. The candidate will be expected to show leadership in driving customer migrations to both platforms. The candidate must be able to communicate with senior stakeholders and influence them, while having the hands on knowledge to drive migrations and improve on existing processes to enhance the user experience on cloud. - Established professional few years working in the related technology infrastructure development life-cycles, testing, implementation, systems administration and support or engineering. - Communicator with ability to lead and influence direction and strategy of technology organization. - Self-starter, capable of working without direction and able to deliver technical projects from scratch. - Significant practical experience in analysing testing results to assess required software and infrastructure tuning. - Sound problem analysis and resolution abilities.

	- Ability to write technology proposals and business recommendations would be considered an advantage. - Established technology infrastructure career in engineering and delivery with relevant experience - Strong development background and understanding of how applications are built - AWS Hands-on experience - certified (preferred) - Experience on both public and private cloud platforms - Experience using containers like docker and Kubernetes - Experience of infrastructure as code using Terraform or similar - Experience in Ansible or similar - Exposure to automate build and deployment pipelines - Banking experience, it's important the candidate has been exposed to the security and compliance restrictions which banks have to deal with or at least worked in an environment which is regulated - Azure or Google cloud experience is an advantage - Worked in previous infra solutions design roles (non-Cloud) during their career - Involved in migrations from on premise data centres to AWS - A solid understanding of DevOps and Infrastructure as code , must be hands on with DevOps tools and can automate deployments to AWS - Use of DevOps tools to build infrastructure and manage configurations Requirements: - Understanding of 3 tier and microservice architecture. Programming skills in, modern language like Java/Golang/Python - Background in various disciplines is essential, such as Development, Testing, Support, and Engineering. - Having a development background with infrastructure experience is an advantage - The ability to articulate use cases, document requirements, and provide management summary information for proof of concepts and testing Is required

	- Significant knowledge of cloud technologies for design and build, both public and private. - A solid understanding of core infrastructure components: OS, network, storage, Database, Web - Knowledge of Virtualised environments required including docker/containerization

2.3.1 Top skill requirements of DevOps/Site Reliability Engineer

Technology Role	Top Skill Requirements
DevOps/Site Reliability Engineer	1. Devops 2. Cloud Technology 3. General Programming 4. Site Reliability Engineer 5. Continuous Delivery and Deployment 6. Unix/Linux 7. Python 8. Java 9. Banking Knowledge 10. Technology Management 11. Troubleshooting 12. Performance Engineering 13. Computer Science 14. Amazon Web Services 15. Regulatory Compliance

2.3.2 Representative job description of DevOps/Site Reliability Engineer

Technology Role	Description
DevOps/Site Reliability Engineer	Responsibilities: - Engage with both the development and support teams throughout the life cycle to help build for reliability. - Develop software to automate manual operational work. - The workload for the position is multifaceted and would include: - Close working collaboration with development and application support teams through SDLC; to maintain and improve the service against established Service Level Objectives by applying software engineering principles. - Responsible for the availability, performance, change management, monitoring, and capacity management of their services. - Incident manage, troubleshoot business critical incidents, conduct post-mortems and ensure permanent closure of the incidents. - Analyse patterns of production incidents, develop permanent remediation plans, and implement

	automation to prevent future incidents from occurring through software engineering - Manage the efforts to split between manual operational work and engineering work. - Work with partner organizations and vendors to provide solutions to current business issues. - Participate in a shift model covering 24x7x365 support. Requirements - Bachelor of Science degree or equivalent experience. - Proven experience with cloud platforms (AWS, PCF) is preferred. - 3+ years working with configuration management and CI/CD tools (SonarQube, Fortify, NexusIQ) - 5+ years of scripting/software experience (bash, python, java and perl) - Familiarity and working experience on DevOps testing and release techniques (i.e. A/B Testing, Blue / Green Deployments and Canary Release, etc…) - Working knowledge on DevOps tools/technologies (Docker, Kubernetes, OpenShift and Fabric8) will be preferred. - Basic knowledge of database technologies (MariaDB/MySQL, etc..) - Strong understanding of all LINUX security best practices - Extensive experience in application/system/network performance and availability monitoring (Grafana, Vizceral, Tivoli, Splunk, etc..) - Solid knowledge of APACHE/Weblogic and MQ Working knowledge of Cloud Engineering. Private and Public Cloud. - Proven experience with cloud platforms (AWS, PCF) is preferred. - AWS certification is preferred. - Proven technical leadership experience, including the ability to quickly understand an issue, appropriately / efficiently troubleshoot to detailed levels and direct swift resolution. - Ability to adapt to a dynamic work environment. - Strong ability to take ownership of issues and drive resolution across teams. - Assertive personality and drive improvement across environment. - Effective written and verbal communication skills.

	- Ability to develop strong client relationships and partner with technology engineering teams.

2.4.1 Top skill requirements of Full Stack Developer

Technology Role	Top Skill Requirements
Full Stack Developer	1. Full Stack Deployment 2. Java 3. Cloud Technology 4. Technology Management 5. General Programming 6. React.js 7. Web Services 8. Javascript 9. Software Development 10. Web Applications 11. Banking Knowledge 12. Micro-services 13. Data Analytics 14. Angularjs 15. Spring Framework

2.4.2 Representative job description of Full Stack Developer

Technology Role	Description
Full Stack Developer	Responsibilities: - Identify, prioritize, and execute tasks and participate in as well as contribute to all phases of the software development lifecycle including code and design reviews - Design, implement, and maintain efficient, reusable, and testable code following best practices and design principles - Develop functional databases, applications, and servers to support websites on the back end - Ensure cross-platform optimization for mobile - Develop and design RESTful services and APIs - Stay abreast of developments in web applications and programming languages - Strategize organizational direction on emerging technology platforms and communicate the effectiveness to executive stakeholders - Stay current and provide insight on cutting edge software approaches, architectures, and vendors - Ensure that non-functional requirements such as security, performance, maintainability, scalability,

	usability, and reliability are being considered when architecting solution Requirements - Hands-on experience with Java/Web frameworks and tools including Java/JEE, Python, Spring-boot, Redis, Hazelcast, Angular, AMQP (RabbitMQ), MongoDB, Cloud Foundry or similar cloud technology - Spring, Jenkins, Docker, Sonar, Apache Hadoop stack, Angular, Test driven development - Familiarity with database technologies, preferably MariaDB, MySQL, NoSQL - Solid experience with Linux - Able to develop services that constitute front to back applications - Knowledge in different domains, programming languages and client environments

2.5.1 Top skill requirements of Front End Developer

Technology Role	Top Skill Requirements
Front End Developer	1. Javascript 2. Front-end Development 3. React.js 4. Technology Management 5. Banking Knowledge 6. CSS2/CSS3 7. Retail Banking 8. Redux 9. Writing Skills 10. User Interface Design 11. Data Analytics 12. Webpack 13. Big Data 14. HTML4/HTML5 15. Software Development Life Cycle (SDLC)

2.5.2 Representative job description of Front End Developer

Technology Role	Description
Front End Developer	Responsibilities: - Analysis and interpretation of business requirements to functional and development specification - Implementation of web-based applications within all phases of the Software Development Life Cycle (SDLC) - Drive components contribution and reusability across platforms - Understand notion of Web and Mobile framework and how it applies to overall standardization and re-use - Work as part of the squad and deliver in agile model Requirements: - Experienced professional development experience - Strong communication to collaborate with stakeholders in all levels - (business, product, design, and development) - Up to date knowledge of design software like Adobe Illustrator, Photoshop, and Sketch - Hands on experience on at least two of the following JavaScript frameworks

	- ReactJS (highly preferred) - ANGULAR (4 and above) - VueJS - Knowledge of JavaScript and web technologies (HTML/CSS) - Knowledge of popular React.js workflows (such as Flux or Redux - Prior experience with data structure libraries (e.g., Immutable.js - Familiarity with modern front-end build pipelines and tools - Experience with common front-end development tools such as Babel, Webpack, NPM, etc. - Ability to understand business requirements and translate them into technical requirements - A knack for benchmarking and optimization - Testing experience, ideally Cucumber, Cypress, Selenium or PACT - Demonstrable experience in Object Oriented JavaScript without the use of a library or framework - Mobile development experience a big plus

2.6.1 Top skill requirements of Back End Developer

Technology Role	Top Skill Requirements
Back End Developer	1. Java 2. General Programming 3. Banking Knowledge 4. Web Services 5. Software Development 6. Spring Framework 7. Cloud Technology 8. Unix/Linux 9. Financial System 10. Foreign Exchange System (Forex) 11. SQL 12. Test-driven Development 13. RESTful API 14. Investment 15. Agile Framework and Methodologies

2.6.2 Representative job description of Back End Developer

Technology Role	Description
Back End Developer	Responsibilities: - Experienced developers with previous experience in the end-to-end design, development and support of large scale data processing systems built on Oracle. - Ability to work and liaise directly with the Front Office, Middle Office and various functions - Familiarity and confidence working in an agile development environment - Familiarity with CI/CD and Devops - Self-starter who can drive/facilitate requirements and development effort with the business - Functional programming experience a plus - Interact with the business users to gather the requirements - Design smart and scalable solutions following the bank standards - Coordinate with other teams in Technology - Provide second line support - Write efficient, clear code and be able to articulate what has been implemented and why.

	- An excellent developer with good software design principles, someone who writes robust code along with accompanying test suites. - Make sure that all software is incorporated into the CI/CD process in SABRE. - Be a self-starter and be able to quickly grasp and understand existing software Requirements: - Hands on development with investment banking IT experience or other technology area - Java 8 (essential streaming, map and reduce functions), Multi-Threading, and Performance tuning in JVM is a plus. - Strong understanding on Data structure and Algorithm - Java Restful API design and development - Development experience on functional programming, such as Haskell /Scala or others, is a plus. - Experience of one or any distributed cache like Hazelcast/Redis/Memcached - Spring Boot and Integration experience is a plus - Oracle PL/SQL development background, SQL Tuning is a plus - Scripting programming in Linux shell is a plus. - SCRUM and Agile. - SSL, TCP/IP, and UDP knowledge is a plus - Financial Market domain knowledge, related with FX and IR derivatives is plus - Experience/familiarity with control processes for FM platforms. - Investment banking is a strong plus - Good Written and verbal communication skills - Outstanding problem solving skills - Proactive, self-starter, autonomous - Good team spirit - Ability to work under pressure with multiple assignments - Strong architectural and engineering background with experience of delivery. - Strong Java skills - Strong knowledge and previous experience in end-to-end design, development and subsequent support of large scale data processing systems

	- Familiarity and confidence working in an "agile" development environment. - Someone who can drive / facilitate the requirements and development effort with the business.