

**KPMG LAW LLP: CANADIAN WORK PERMIT QUESTIONNAIRE**

**EMPLOYEE DETAILS**

EMPLOYEE NAME: **MOHAMMAD SAJID**

MOBILE: **8688157696**

EMAIL: **MS00484606@Techmahindra.com**

ORIGINAL HIRE DATE: **3<sup>rd</sup> October 2016**

TRANSFER DATE TO CANADA:

**I – Current Position in Canada**

CURRENT EMPLOYMENT LOCATION:

CURRENT JOB TITLE (include a copy of the job description; if not available, please include a list of duties in bullet format):

CURRENT SALARY (include currency):

**II – Proposed Position in Canada**

Company Name (in Canada): **Tech Mahindra Limited C/O THE BANK OF NOVA SCOTIA.**

EMPLOYMENT LOCATION (list all locations in Canada):

**Tech Mahindra Ltd.**

1960 Eglinton Avenue East, 2nd floor,  
Scarborough,  
**Toronto, ON, M1L2M5.**  
Phone:+1 647 494 0340

**Tech Mahindra Ltd.**

VO - 100 Consilium Place, Suite 311, Scarborough,  
**Toronto, ON M1H3E3**  
Phone:+1 647 4940340

**Tech Mahindra Ltd.**

Brookfield Place, 161 Bay Street, Suite 2725,  
**Toronto, ON M5J2S1**  
Phone:+1 416 5722096

**Tech Mahindra Ltd.**

World trade centre, (HQ),  
999 Canada place, suite 404,  
**Vancouver, BC V6C3E2.**

Phone:+1 604-641-1227

**Tech Mahindra Ltd.**

National Business Centre, 7575 Trans-Canada,  
Highway, Suite 500-C **St-Laurent, QC**  
Phone:+1 647 494 0340

**Tech Mahindra Ltd.**

Sunlife Plaza Tower,  
144-4th Avenue SW, suite 1600,  
**Calgary, AB T2P3N4999**  
Phone:+1 (403) 313-7557

Will the employee be located primarily at a client site? If yes:

- The applications, the customer business & technical teams are located at offsite and the employee is required to work together with the client teams in order to meet the business expectations of the team.
- Mohammad Sajid has over 1 year and 10 months of hands on experience on LEAP, Scotia Connect Online frameworks and acquired expert knowledge required to successfully design and implement the complex solution and meets the objectives of the project and customer requirement. In Addition, Mohammad Sajid will transfer the knowledge to the Canadian based employees of Bank of Nova Scotia which will help make future implementations easier.
- How and by whom will the employee be directed and controlled? Please include the contact details of Manager

The employee will be directed and controlled by Tech Mahindra Canada Management.  
Manager: Govind Korimilli, Contact # +1 647 949 2755

JOB TITLE: **COMPUTER PROGRAMMER**

SALARY IN CANADA (include currency): **CAD 74,672 Per Annum**

WHO WILL PAY SALARY (which company's payroll): **Tech Mahindra Limited**

Allowances/Per Diems (include currency):

- Indicate whether cash per diem or an allocated allowance
- Who will pay allowances/per diems?

ANTICIPATED START DATE (Or, expiry date of current Work Permit): **01-OCT-2018**

EXPECTED DURATION OF STAY IN CANADA: **12 Months**

MANAGER'S NAME: **Govind Korimilli**

MANAGER'S CONTACT DETAILS: **+1 647 949 2755**

### **III– Proposed Duties & Responsibilities:**

1. Describe the project the applicant will be working on in Canada, if applicable.

**Scotia Connect online (SCO)** project is an electronic banking and treasury management solution gives you comprehensive and timely balance and transaction reporting on your accounts in Canada and around the world. With Scotia Connect you have access to detailed account information and cash management services, giving you greater control of your day-to-day finances. Scotia Connect is the application which is being used by the Bank of Nova Scotia for commercial banking. This application empowered with functionalities like **Account Transfers, Wire Payments, ACH Payments, EDI Payments, EFT Payments, Stop Payments, Generating Reports and Account Statements, Administration** and many more. It also allows user to perform **Integrated Payments transfer**. Scotia Connect has the capability to import templates/payments from and export templates to physical files.

SCO project is using most advanced technologies and Scotia banks proprietary frame works. The security solution for Authentication and Authorization of SCO was done by using **ForgeRock**. The Customer Authentication Management solution for the Scotia Connect electronic banking service is comprised of the **User Management, Authentication, Registration and Migration Services** which are exposed as **RESTFUL** Web services. Scotia Connect front end supports multiple channels it is designed based on **eJSF** and **Flex UI**. Scotia Connect front end leverages the browser agnostic capabilities of Scotia Bank's proprietary framework **Flex UI**. Development of web based application using **JAVA/J2EE, JSF and CDI**, which will provide a UI portal for the Customers, next creating a **SOAP web service** which will help the UI components to access the various host systems and connect to Database using **Spring Framework, Hibernate and DB2**.

**LEAP Chile** enables end users to perform day to day banking operations like retail accounts summary, listing and filtering of history and upcoming transaction, funds transfers of different types like current, future dated and recurring, bill payments, tax payments, mobile top up, loan accounts, credit cards(history, payments), mutual fund buy, sell, account administration activities like adding payees. LEAP Platform is developed using programming platforms and technologies like Java/J2EE, Angular 2, Node.js, React.js and UNIX. It provides clear separation between view and business tier using **eSOA** framework, LEAP using **BIRT** and **Jasper** for reporting purpose.

LEAP project is using most advanced technologies and Scotia banks proprietary frame works. As LEAP front end supports multiple channels it is designed based on **eJSF** and **Flex UI**. LEAP front end leverages the browser agnostic capabilities of Scotia Bank's proprietary framework **Flex UI**. The services layer is designed based on of **eSOA** which is also one of the Scotia Bank's proprietary frameworks. And, LEAP is using **Actuate BIRT** and **Jasper** for all reporting functions.

#### **Duties & Responsibilities at onsite will be as follows:**

- Analyzing and finalizing the business requirements with the client.
- Preparing the High level and low level design documents based on the provided External Design.
- Designing architecture using JEE, Servlet, XML, XSD, XHTML, JSF, JQuery, eSOA Framework , Angular2, and eJSF Framework

- Designing and developing the application user interface using JSF and JQuery with the help of XHTML.
- Developing complex web services and web service clients using JAX-WS for data access in the required format.
- Developing stored procedures for data manipulations in Sybase.
- Performance tuning with memory and CPU profiling capabilities, implementing centralized license management and tool deployment with the help of RAD.
- Managing and promoting code in Source control using Clear case/Bit Bucket.
- Monitoring the deployment and administrative activities in Web sphere application server
- Fixing bugs rose in various stages of application development (IST, UAT & Pre Prod).
- Responsible for on job training to the customer teams on the business, domain and technical aspects
- Monitoring the applications by viewing the logs in remote servers using Putty.
- Responsible for complete code coverage and unit testing based on functional and business requirements using Junit test framework.
- Possess good knowledge of banking domain and have sound exposure and knowledge in banking terminologies.
- Supporting the code promotion, application configuration in various environments for system Integration Testing, User acceptance testing and go-live of the application.
- Communicating & coordinating with the teams located at different locales.

### **Technology & Frameworks involved**

#### **Scotia Connect Framework:**

This framework formed by integrating the various java technologies (eSOA, eJSF) and security tools and developed by TechM as part of the Scotia Connect.

#### **LEAP Framework:**

This is a TechM and Scotia Bank proprietary framework formed by integrating the various java technologies (eSOA, eJSF) and security tools and developed by TechM as part of the LEAP.

#### **eJSF Framework:**

It is built on JAVA- JSF and this is one of the Bank of Nova Scotia proprietary applications, all the client side applications (presentation and controller layers) are built on eJSF framework. All the components in eJSF are customized and internal to the TechM-Scotia i.e. proprietary which is not available outside in the market.

#### **eSOA Framework:**

"esOA" is an application architecture in which all functions, or services, are defined using a description language and have callable interfaces that are called to perform business processes. Each interaction is independent of each and every other interaction and the interconnect protocols of the communicating devices. Though built on similar principles, eSOA is not the same as Web services, which indicates a collection of technologies, such as SOAP and XML. SOA is more than a set of technologies and runs independent of any specific technologies. This is also TechM-Scotia proprietary framework which is not available outside in the market.

**Spring Integration:**

Spring Integration is an enterprise integration framework that provides out-of-the-box implementation of the patterns in the now-classic Enterprise Integration Patterns book. Building on spring's Inversion of Control design pattern, Spring Integration abstracts message sources and destinations and uses message passing and message manipulation to integrate various components within the application environment. Applications built with Spring Integration are able to send messages between components, either across a message bus to another server in your environment or even to another class within the same virtual machine.

Spring Integration's support for event-driven architecture rests on three core components:

- Messages are objects sent from one component to another.
- Channels are the means by which messages are sent, they can be synchronous or asynchronous.
- Adapters route the output from one channel to the input of another one.

**Spring Boot:**

Spring Boot offers a fast way to build applications. It looks at your class path and at beans you have configured, makes reasonable assumptions about what you're missing, and adds it. With Spring Boot you can focus more on business features and less on infrastructure.

It is a spring module which provides RAD (Rapid Application Development) feature to spring framework. It is used to create standalone spring based application that you can just run because it needs very little spring configuration. Spring Boot does not generate code and there is absolutely no requirement for XML configuration. It uses convention over configuration software design paradigm that means it decrease the effort of developer.

**Advantages of Spring Boot**

- Create stand-alone spring applications that can be started using `java -jar`.
- Embed Tomcat, Jetty or Undertow directly. You don't need to deploy WAR files.
- It provides opinionated 'starter' POMs to simplify your Maven configuration.
- It automatically configures Spring whenever possible.
- It provides production-ready features such as metrics, health checks and externalized configuration.
- Absolutely no code generation and no requirement for XML configuration.

**Spring Cloud:**

Spring Cloud provides tools for developers to quickly build some of the common patterns in distributed systems (e.g. configuration management, service discovery, circuit breakers, intelligent routing, micro-proxy, control bus, one-time tokens, global locks, leadership election, distributed sessions, cluster state). Coordination of distributed systems leads to boiler plate patterns, and using Spring Cloud developers can quickly stand up services and applications that implement those patterns. They will work well in any distributed environment, including the developer's own laptop, bare metal data centers, and managed platforms such as Cloud Foundry. Spring Cloud builds on Spring Boot by providing a bunch of libraries that enhance the behavior of an application when added to the class path. You can take advantage of the basic default behavior to get started really quickly, and then when you need to, you can configure or extend to create a custom solution.

## Features

Spring Cloud focuses on providing good out of box experience for typical use cases and extensibility mechanism to cover others.

- Distributed/versioned configuration
- Service registration and discovery
- Routing
- Service-to-service calls
- Load balancing
- Circuit Breakers
- Global locks
- Leadership election and cluster state
- Distributed messaging

Spring Cloud takes a very declarative approach, and often you get a lot of features with just a class path change and/or an annotation.

## Hibernate Framework:

Hibernate ORM is an object-relational mapping framework for the Java language. It provides a framework for mapping an object-oriented domain model to a relational database. Hibernate solves object-relational impedance mismatch problems by replacing direct, persistent database accesses with high-level object handling functions.

The mapping of Java classes to database tables is implemented by the configuration of an XML file or by using Java Annotations. When using an XML file, Hibernate can generate skeleton source code for the persistence classes. This is auxiliary when annotations are used. Hibernate can use the XML file or the Java annotations to maintain the database schema. There are provided facilities to arrange one-to-many and many-to-many relationships between classes. In addition to managing associations between objects, Hibernate can also manage reflexive associations wherein an object has a one-to-many relationship with other instances of the class type.

Hibernate supports the mapping of custom value types. This makes the following scenarios possible:

- Overriding the default SQL type which Hibernate chooses while it is mapping a column to a property.
- Mapping Java Enums to columns as though they were regular properties.
- Mapping a single property to multiple columns.

## Hibernate Validation Framework:

This framework is used in SCO application for all the validations either client side or server side. Hibernate Validator allows to express and validate application constraints. The default metadata source is annotations, with the ability to override and extend through the use of XML. It is not tied to a specific application tier or programming model and is available for both server and client application programming.

Hibernate Validator offers a configurable bootstrap API as well as a range of built-in constraints. The latter can easily be extended by creating custom constraints.

Hibernate Validator offers additional value on top of the features required by Bean Validation. For example, a programmatic constraint configuration API as well as annotation processor which plugs into the build process and raises compilation errors whenever constraint annotations are incorrectly used.

#### **BIRT:**

BIRT is open source software that provides the BIRT technology platform to create data visualizations and reports that can be embedded into rich client and web applications, especially those based on Java and Java EE.

#### **CDI:**

The most fundamental services provided by CDI are as follows:

- 1) **Contexts:** The ability to bind the lifecycle and interactions of Stateful components to well-defined but extensible lifecycle contexts
- 2) **Dependency injection:** The ability to inject components into an application in a type safe way, including the ability to choose at deployment time which implementation of a particular interface to inject
- 3) **In addition, CDI provides the following services:** Integration with the Expression Language (EL), which allows any component to be used directly within a Java Server Faces page or a Java Server Pages page. The ability to decorate injected components. The ability to associate interceptors with components using type safe interceptor bindings and an event-notification model. A web conversation scope in addition to the three standard scopes (request, session, and application) defined by the Java Servlet specification. A complete Service Provider Interface (SPI) that allows third-party frameworks to integrate cleanly in the Java EE 6 environment
- 4) **A major theme of CDI is loose coupling. CDI does the following:** Decouples the server and the client by means of well-defined types and qualifiers, so that the server implementation may vary.
- 5) **Decouples the lifecycles of collaborating components by doing the following:** Making components contextual, with automatic lifecycle management, allowing stateful components to interact like services, purely by message passing completely decouples message producers from consumers, by means of events Decouples orthogonal concerns by means of Java EE interceptors.
- 6) **Along with loose coupling, CDI provides strong typing by:** Eliminating lookup using string-based names for wiring and correlations, so that the compiler will detect typing errors.

#### **Spring Tool Suite:**

The Spring Tool Suite is an Eclipse-based development environment that is customized for developing spring applications. It provides a ready-to-use environment to implement, debug, run, and deploy your spring applications, including integrations for Pivotal Server, Pivotal Cloud Foundry, Git, Maven, AspectJ, and comes on top of the latest Eclipse releases.

#### **Micro Services:**

Micro service is an approach to application development in which a large application is built as a suite of modular services. Each module supports a specific business goal and uses a simple, well-

defined interface to communicate with other sets of services. The micro service architectural style is an approach to developing a single application as a suite of small services, each running in its own process and communicating with lightweight mechanisms, often an HTTP resource API. These services are built around business capabilities and independently deployable by fully automated deployment machinery.

#### **Cloud Foundry:**

Cloud Foundry (CF) has become the industry standard. It is an open source platform that you can deploy to run your apps on your own computing infrastructure, or deploy on an IaaS like AWS, vSphere, or OpenStack. You can also use a PaaS deployed by a commercial CF cloud provider. A broad community contributes to and supports Cloud Foundry. The platform's openness and extensibility prevent its users from being locked into a single framework, set of app services, or cloud.

Cloud Foundry is ideal for anyone interested in removing the cost and complexity of configuring infrastructure for their apps. Developers can deploy their apps to Cloud Foundry using their existing tools and with zero modification to their code.

#### **Flex UI:**

Flex UI is a Scotia Bank's proprietary framework built using Font Awesome, Bootstrap, CSS and JQuery & JavaScript. This framework enables front end of application with responsive UI for all devices like mobile, tablet, laptop and desktops. He has expert knowledge in integrating this framework with JSF and other front end technologies using in Scotia Bank.

#### **Angular 2:**

Angular is a platform that makes it easy to build applications with the web. Angular combines declarative templates, dependency injection, end to end tooling, and integrated best practices to solve development challenges. Angular empowers developers to build applications that live on the web, mobile, or the desktop

Angular 2 is the next version of Google's massively popular framework for building complex applications in the browser (and beyond). Angular 2 comes with almost everything you need to build a complicated frontend web or mobile apps, from powerful templates to fast rendering, data management, HTTP services, form handling, and so much more.

#### **Node.js:**

Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on Microsoft Windows and Linux. Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.



**Git:**

The purpose of Git is to manage a project, or a set of files, as they change over time. Git stores this information in a data structure called a repository. The parent commit objects are those commits that were edited to produce the subsequent state of the project. Generally a commit object will have one parent commit, because one generally takes a project in a given state, makes a few changes, and saves the new state of the project. The section below on merges explains how a commit object could have two or more parents.

A project always has one commit object with no parents. This is the first commit made to the project repository.

Based on the above, you can visualize a repository as a directed acyclic graph of commit objects, with pointers to parent commits always pointing backwards in time, ultimately to the first commit. Starting from any commit, you can walk along the tree by parent commits to see the history of changes that led to that commit. The idea behind Git is that version control is all about manipulating this graph of commits.

**React.js:**

React is a declarative, efficient, and flexible JavaScript library for building user interfaces. React has a few different kinds of components, but we'll start with React. Component We'll get to the funny XML-like tags in a second. Your components tell React what you want to render – then React will efficiently update and render just the right components when your data changes.

**IBM Clear Case:**

Rational Clear Case is a leading enterprise software configuration management (SCM) product. Clear Case is developed by IBM.

It forms the basis for configuration management at large and medium-sized businesses and can accommodate projects with hundreds or thousands of developers.

It simplifies the process of change in large development environments as it helps software teams control requirements, models, source code, documentation, and test scripts. It handles version control, parallel development, workspace management, process configurability and builds management. It also provides advanced build auditing and a Web interface for universal data access. Through the use of scripted rules, Clear Case manages and enforces the organization's development process.

Clear Case supports two configuration management models: UCM (Unified Change Management) and base Clear Case. UCM provides an out-of-the-box model while base Clear Case provides a basic infrastructure (UCM is built on base Clear Case). Both can be configured to support a wide variety of needs.

**HP Application Life Cycle Management (ALM):**

HP ALM manages and governs quality processes and automates software testing across application environment. It arms with the capabilities need to manage the release process and make more informed release decisions. By using consistent, repeatable and standardized

processes, HP ALM can help reduce costs, risk, increase quality and produce more frequent releases.

### **Bootstrap:**

Bootstrap is a free and open source front end web frame work for designing web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Before Bootstrap, various libraries were used for interface development, which led to inconsistencies and a high maintenance burden.

Bootstrap is compatible with the latest versions of the Google Chrome, Firefox, Internet Explorer, Opera, and Safari browsers. Some of these browsers are not supported on all platforms. Bootstrap supports responsive web design and the layout of web pages adjusts dynamically as per the selected device characteristics i.e. desktop, mobile, tablet etc.

### **Font Awesome:**

Font Awesome is font and icon toolkit based on CSS, gives you scalable vector icons that can instantly be customized (size, color, drop, shadow) with the power of CSS.

### **JQuery:**

JQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. JQuery syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications.

The JQuery library provides simple syntax for adding event handlers to the DOM using JavaScript, rather than adding HTML event attributes to call JavaScript functions. Thus, it encourages developers to completely separate JavaScript code from HTML markup.

The JavaScript engines of different browsers differ slightly so JavaScript code that works for one browser may not work for another. Like other JavaScript toolkits, JQuery handles all these cross-browser inconsistencies and provides a consistent interface that works across different browsers.

### **Web Services Security:**

Because of its nature (loosely coupled connections) and its use of open access (mainly HTTP), SOA implemented by Web services adds a new set of requirements to the security landscape. Web services security includes several aspects:

- **Authentication**—verifying that the user is who she claims to be. A user's identity is verified based on the credentials presented by that user, such as:
  1. Something one has, for example, credentials issued by a trusted authority such as a passport (real world) or a smart card (IT world).
  2. Something one knows, for example, a shared secret such as a password.
  3. Something one is, for example, biometric information.

Using a combination of several types of credentials is referred to as "strong" authentication, for example using an ATM card (something one has) with a PIN or password (something one knows).

- **Authorization (or Access Control)**—Granting access to specific resources based on an authenticated user's entitlements. Entitlements are defined by one or several attributes. An attribute is the property or characteristic of a user, for example, if "Marc" is the user, "conference speaker" is the attribute.
- **Confidentiality, privacy**—keeping information secret. Accesses a message, for example a Web service request or an email, as well as the identity of the sending and receiving parties in a confidential manner. Confidentiality and privacy can be achieved by encrypting the content of a message and obfuscating the sending and receiving parties' identities.
- **Integrity, non-repudiation**—making sure that a message remains unaltered during transit by having the sender digitally sign the message. A digital signature is used to validate the signature and provides non-repudiation. The timestamp in the signature prevents anyone from replaying this message after the expiration.

Web services security requirements also involve credential mediation (exchanging security tokens in a trusted environment), and service capabilities and constraints (defining what a Web service can do, under what circumstances).

In many cases, Web services security tools such as Oracle WSM rely on Public Key Infrastructure (PKI) environments. A PKI uses cryptographic keys (mathematical functions used to encrypt or decrypt data). Keys can be private or public. In an asymmetric cipher model, the receiving party's public key is used to encrypt plaintext, and the receiving party's matching private key is used to decrypt the cipher text. Also, a private key is used to create a digital signature by signing the message, and the public key is used for verifying the signature. Public-key certificates (or certificates, for short) are used to guarantee the integrity of public keys.

Web services security requirements are supported by industry standards both at the transport level (Secure Socket Layer) and at the application level relying on XML frameworks.

### **Actuate™ One iHub / Actuate iServer:**

Professional Business Intelligence (BI) Reporting Tools for Building Customer-Facing Applications and Interactive Business Reports. Professional Reporting Software with Modern Web 2.0 Design for Better User Experience.

The BIRT iHub Visualization Platform powers, integrates, and manages BIRT Analytics Applications and BIRT-based information. Designed specifically to give users more control over their personalized business insights, BIRT iHub transforms complex data seamlessly and effectively into compelling visualizations: graphs, charts, tables, diagrams, and more. With customizable features like dashboards, statements, applications, and interactive reports, the BIRT iHub Visualization Platform is accessible through any Internet browser or by smart mobile devices.

Actuate one iServer delivers information to virtually unlimited numbers of users in record-breaking time. This scalable, world-class server generates, manages and securely delivers interactive, actionable business information to employees, customers and partners. BIRT iServer

can integrate information from any data source and application, and can be phased in, adding features and resources as required. Rich Information Applications (RIAs) that include a BIRT iServer allow users to access Actuate BIRT, BIRT open-source products, BIRT Spreadsheet options, BIRT Performance Management, eReport and Analytics products, and to create and deliver resulting reports via a web-based user interface. With BIRT iServer, organizations can deploy the widest variety of reports, from simple lists to RIAs running inside and outside the firewall.

Actuate BIRT Designer Professional reporting software enhances the features of open source BIRT Designer and is the ideal platform for users who want to build information applications rich in interactivity and business reports with expressive data charts integrated with JavaScript and hundreds of HTML5 visualizations. The Web 2.0 interface improves user experience by transforming traditional static business reports into a progressive, interactive, and collaborative reporting process for developers and end users. Users can see data calculations evolve as they interact with the graphs and charts to find answers to their business questions. Powerful data integration and caching technology enable developers to create the most amazing, visually engaging customer-facing applications, mashups and dashboards imaginable.

#### **RAD by IBM:**

Rational Application Development is a commercial Eclipse-based integrated development environment (IDE), made by IBM, for visually designing, constructing, testing, and deploying Web services, portals, and Java Enterprise Edition (JEE) applications. RAD is an integrated development environment that helps Java software developers design, develop, and deploy their applications. It contains specialized wizards, editors, and validators for a variety of technologies like web services, XML, web application and Service Component Architecture (SCA).

RAD includes tools to improve code quality. A Java profiling tool helps to analyze an application's performance, memory usage, and threading problems. A software analysis tool identifies patterns and anti-patterns in application code, and compares code to coding standards.

#### **Key Features:**

Support for leading commercial and open source Java application servers.

- EJB, JPA and Web services development.
- Performance tuning with memory and CPU profiling capabilities.
- Profile performance across JDBC, RMI, JSP, JNDI, EJBs, JMS, and Web service protocol containers.
- Code coverage and analysis.
- Code audit and metrics.
- UML 2.0 modeling and code archeology.
- Viewing BIRT developed reports as sample, once developed without deploying them to the server for testing purpose.

Collaborative team development with integrated tracking, source code management, project planning and continuous builds.

### **IBM Web Sphere:**

Web Sphere is a set of Java-based tools from IBM that allows customers to create and manage sophisticated business Web sites. The central Web Sphere tool is the Web Sphere Application Server (WAS), an application server that a customer can use to connect Web site users with Java applications or servlets. Servlets are Java programs that run on the server rather than on the user's computer as Java applets do.

In addition to Java, Web Sphere supports open standard interfaces such as the Common Object Request Broker Architecture (CORBA) and Java Database Connectivity (JDBC) and is designed for use across different operating system platforms like Windows NT and AIX. Web Sphere also includes Studio, a developer's environment with additional components that allow a Web site's pages to be created.

### **ForgeRock OpenAM:**

ForgeRock OpenAM is a web-based open source application that provides Authentication, Authorization, Entitlement and Federation services. ForgeRock OpenAM provides core identity services to simplify the implementation of transparent single sign-on (SSO) as a security component in a network infrastructure. OpenAM provides the foundation for integrating diverse web applications that might typically operate against a disparate set of identity repositories and are hosted on a variety of platforms such as web and application servers.

Key features of ForgeRock OpenAM are:

- Easily integrates into existing systems.
- Allows you to build a federated identity and entitlement solution easily.
- Entitlements engine that supports the latest XACML protocol.
- Full support for OAuth which is widely used in social networking sites.

### **IV - Education/Experience/Employment Requirements of the Position:**

1. What is the minimum education any candidate would have to possess in order to execute this position?

Candidate must be at least a university graduate and have vast knowledge of banking and financial domain products, quality maintenance process and combination of below technical skill sets.

- **Development Frame Works and tools** – spring, JSF, Rich faces, HTML, CSS, java Script, web services (Spring and REST), Hibernate, GIT, Bit bucket, Clear Case, Maven, Sybase, Eclipse, RAD, Apache ANT, Apache Tomcat, Spring Tool suite, Angular2, Spring Boot, Spring cloud and Pivotal Cloud Foundry.
- **Operating System** - Windows.

2. What is the minimum experience or knowledge any candidate would have to possess in order to execute this position? As above, this is not to be a description of only what this applicant has.

A candidate should have at least 5 years of extensive hands on experience in software development and also an in-depth knowledge of the banking domain to compliment his technical skills along with and 1+ year of TechMahindra experience.

#### **V– Training other Canadian Employees:**

1. How will this employee enhance the knowledge of and provide Direct/ indirect training to Canadian employees?

Mr. Mohammad Sajid has good experience in project methodologies, key technologies and in-depth knowledge of the running applications will ensure that the highly critical project is implemented to provide required services to banking system. Also, having such an experienced resource will not only bring the stability to the overall project run but also prepare other resources in the project for taking up such challenging roles.

He has been preparing project related document and taking up knowledge-sharing sessions which have immensely helped the new members of the project and will continue to do so.

#### **VI - Benefit to Canada**

1. How will this employee provide significant benefits to the Canadian company?

Mr. Mohammad Sajid will benefit the project while performing following services for the mentioned project

Mr. Mohammad Sajid understands, articulates, and implements best practices related to his area of expertise. He is capable of working independently as well as a lead for a team of development specialists for the enterprise based projects at the Bank of Nova Scotia. He has specialized knowledge as mentioned above and provides guidance to resolve organizational needs. His expertise has added value to the organization and is expected to be very useful in the future too.

Due to his experience, knowledge and skills, he can contribute to the projects by bringing in new ideas and methodologies, develop right solutions, ensure clear communication with the stakeholders and therefore create maximum value in the most cost effective manner.

**VII - Specialized Knowledge Assessment:** Proprietary Knowledge (kindly indicate which technologies/applications/products are proprietary and to whom (Organization or Client):

Mr. Mohammad Sajid has experience on using the below described proprietary development tools, processes and procedures. Application technology and special technical skills that are required for this project, with which Mr. Mohammad Sajid is familiar, are listed below:

- **Spring Boot:**

Spring Boot offers a fast way to build applications. It looks at your class path and at beans you have configured, makes reasonable assumptions about what you're missing, and adds it. With Spring Boot you can focus more on business features and less on infrastructure.

It is a spring module which provides RAD (Rapid Application Development) feature to spring framework. It is used to create standalone spring based application that you can just run because it needs very little spring configuration. Spring Boot does not generate code and there is absolutely no requirement for XML configuration. It uses convention over configuration software design paradigm that means it decrease the effort of developer.

Spring Boot has *opinions*. This is just another way of saying that Spring Boot has reasonable defaults, so you can build an application quickly using these commonly used values.

As an example, Tomcat is a very popular web container. By default, a Spring Boot web application uses an embedded Tomcat container.

An opinionated framework isn't much good if you can't change its mind. You can easily customize a Spring Boot application to your liking, either in the initial configuration or later in the development cycle.

For example, if you prefer Maven, then you can easily make <dependency> change(s) in your POM file to replace the Spring Boot default value.

**Starters:** Starters are a big part of the magic of Spring Boot, used to limit the amount of manual dependency configuration that you have to do. If you're going to use Spring Boot effectively, you should know about starters.

A starter is essentially a set of dependencies (such as a Maven POM) that are specific to the type of application the starter represents.

All starters use the naming convention: spring-boot-starter-XYZ, where XYZ is the type of application you want to build. Here are some popular Spring Boot starters:

- Spring-boot-starter-web is used to build RESTful web services using Spring MVC and Tomcat as the embedded application container.
- Spring-boot-starter-jersey is an alternative to spring-boot-starter-web that uses Apache Jersey rather than Spring MVC.
- Spring-boot-starter-jdbc is used for JDBC connection pooling. It's based on Tomcat's JDBC connection-pool implementation.

### **Advantages of Spring Boot**

- Create stand-alone spring applications that can be started using java -jar.
  - Embed Tomcat, Jetty or Undertow directly. You don't need to deploy WAR files.
  - It provides opinionated 'starter' POMs to simplify your Maven configuration.
  - It automatically configures spring whenever possible.
  - It provides production-ready features such as metrics, health checks and externalized configuration.
  - Absolutely no code generation and no requirement for XML configuration.
- **Spring Cloud:**
- Spring Cloud provides tools for developers to quickly build some of the common patterns in distributed systems (e.g. configuration management, service discovery, circuit breakers, intelligent routing, micro-proxy, control bus, one-time tokens, global locks, leadership election, distributed sessions, cluster state). Coordination of distributed systems leads to boiler plate patterns, and using Spring Cloud developers can quickly stand up services and applications that implement those patterns. They will work well in any distributed

environment, including the developer's own laptop, bare metal data centers, and managed platforms such as Cloud Foundry.

Spring Cloud builds on Spring Boot by providing a bunch of libraries that enhance the behavior of an application when added to the class path. You can take advantage of the basic default behavior to get started really quickly, and then when you need to, you can configure or extend to create a custom solution.

### **Features**

Spring Cloud focuses on providing good out of box experience for typical use cases and extensibility mechanism to cover others.

- Distributed/versioned configuration
- Service registration and discovery
- Routing
- Service-to-service calls
- Load balancing
- Circuit Breakers
- Global locks
- Leadership election and cluster state
- Distributed messaging

Spring Cloud takes a very declarative approach, and often you get a lot of features with just a class path change and/or an annotation.

Cloud Native is a style of application development that encourages easy adoption of best practices in the areas of continuous delivery and value-driven development. A related discipline is that of building 12-factor Apps in which development practices are aligned with delivery and operations goals, for instance by using declarative programming and management and monitoring. Spring Cloud facilitates these styles of development in a number of specific ways and the starting point is a set of features that all components in a distributed system either need or need easy access to when required.

Many of those features are covered by Spring Boot, which we build on in Spring Cloud. Some more are delivered by Spring Cloud as two libraries: Spring Cloud Context and Spring Cloud Commons. Spring Cloud Context provides utilities and special services for the Application Context of a Spring Cloud application (bootstrap context, encryption and refresh scope and environment endpoints). Spring Cloud Commons is a set of abstractions and common classes used in different Spring Cloud implementations (ex. Spring Cloud Netflix vs. Spring Cloud Consul).

#### ○ **eJSF:**

eJSF is an extension to JSFv2.2. This framework enables project teams to define the secured web pages with customized filters & listeners. Mr. Mohammad Sajid has trained on this Scotiabank customized Framework and need to upgrade this framework based on project specific needs while developing LEAP retail banking applications.



- **Flex UI:**  
Flex UI is a Scotia Bank's proprietary framework built using Font Awesome, Bootstrap, CSS, JQuery & Java Script. This framework enables front end of application with responsive UI for all devices like mobile, tablet, laptop and desktops. He has expert knowledge in integrating this framework with JSF and other front end technologies using in Scotia Bank.
- **eSOA:**  
eSOA is a framework that enables handling of protocol based communication with backend or third party tools like Messaging Queues, Web Services, AS400 Program call, Database etc. This framework provides a single interface with generic objects for communication with common headers, service specific objects and exception handling. This framework is a repository of pluggable and configurable services independent of transport channel Mr. Mohammad Sajid has been trained on this Scotiabank framework and he has to implement this eSOA framework for development of LEAP retail banking applications.
- **Spring Integration:**  
Spring Integration is an enterprise integration framework that provides out-of-the-box implementation of the patterns in the now-classic Enterprise Integration Patterns book. Building on spring's Inversion of Control design pattern, Spring Integration abstracts message sources and destinations and uses message passing and message manipulation to integrate various components within the application environment. Applications built with Spring Integration are able to send messages between components, either across a message bus to another server in your environment or even to another class within the same virtual machine.
- **Hibernate Framework:**  
Hibernate framework simplifies the development of java application to interact with the database. Hibernate is an open source, lightweight, ORM (Object Relational Mapping) tool. An ORM tool simplifies the data creation, data manipulation and data access. It is a programming technique that maps the object to the data stored in the database.
- **Web Services Security**  
Web Services Security is a specification describes enhancements to SOAP messaging to provide message integrity and confidentiality. The specified mechanisms can be used to accommodate a wide variety of security models and encryption technologies. This specification also provides a general-purpose mechanism for associating security tokens with message content. By using WS-Security, he has given support for variety of security models and implemented requirements like multiple security token formats, multiple trust domains, multiple signature formats, multiple encryption technologies and end-to-end message content security  
Below are the tools used in the project that Mr. Mohammad Sajid has gathered knowledge from Tech Mahindra as part of Client and Project Induction trainings.
- **Tech Mahindra's "Qualify":**  
Quality is a Management System that aids in the implementation, monitoring, and management of Tech Mahindra's SEI-CMM Level 5 software development and

maintenance process lifecycles. Mr. Mohammad Sajid has expert knowledge in making use of "Qualify".

- **Tech Mahindra's "Resolve":**

Resolve, a defect tracking tool. The tool enables project teams to define the Quality Assurance Plan, track the inspection, review and testing defects to closure. Mr. Mohammad Sajid has expert knowledge in using the Resolve tool.

- **SKM (Scotia Knowledge Management) tool:**

As Scotiabank is a platinum customer for Tech Mahindra, Tech Mahindra has developed "SKM (Scotia Knowledge Management)" tool. This tool will be accessible only for the resources who work in Scotiabank related projects to share their project documents, ideas, best practices, questions, quizzes, etc. Mr. Mohammad Sajid has expert knowledge in using tool.

- **Scotiabank process/frameworks/architecture tools:**

Mr. Mohammad Sajid has trained on Scotiabank process / frameworks / architecture tools and he has been using them successfully. He also provided plug and play middle level interfaces based on this knowledge.

- Are these relevant company products or services unique/proprietary within the industry?

Yes, as these are already being used by the customer. Scotia International Banking platform is developed its own architecture using eSOA Framework and eJSF frameworks by following Scotia secured stabilized productive and standardized development ways. These frameworks contain mix of the several design patterns and frameworks, which provides more easy to use features and high level security, when it is compared to similar products in the market.

- If there is no proprietary tool/software involved, please explain if there is a company specific methodology or approach which is proprietary to your organization. Please explain in detail.

There are proprietary frameworks like eSOA Framework and eJSF frameworks are involved in the development of IBP project.

In addition to above mentioned technical expertise, Mr. **Mohammad Sajid** is also experienced with internal products like Resolve, and the project execution methodologies like Agile, the design and architecture of the applications.

- How many years of experience do the employee hold in the relevant unique/proprietary company products or services? How and when was it obtained?

Mr. Mohammad Sajid is having good understanding of enterprise application software development process and software life cycle and having over 5 years and 02 months of software development experience. He is skilled and well experienced in the following

specialized technological tools/areas during enterprise application development for more than 1 year 10 months with Bank of Nova Scotia.

**Tools:** eSOA Framework, eJSF Framework, Pre-composition framework.

- a) He is also having good domain skills in Banking, Financial, Mortgage and Legal.
- b) He has functional expertise on Banking/Credit-Non Credit systems in Bank of Nova Scotia and well versed with functionality of "Scotia International Banking" and focused mainly on Service tire and View tire at enterprise level.
- Explain how the employee's experience/expertise is essential or critical to the project or engagement in Canada.

The job requires an in-depth knowledge and rich experience in software development with hands on experience in enterprise application development of banking related applications and a technical expertise in Java J2EE related technologies along with functional expertise on other the proprietary tools and third party systems interacting with international banking applications.

Mr. Mohammad Sajid has relevant experience, skills and qualities for this job. He also understands, articulates, and implements best practices related to his area of expertise.

Mr. Mohammad Sajid is working on these applications since a long time. His understanding of these applications, the business rules and functionality, interfaces with other critical applications is very critical to the success of the current work. If this employee does not work from offsite, there would be need of lot of trainings to be provided which is very time consuming and will impact the outcome of the project.

Mr. Mohammad Sajid is expected to work during Canada business hours at customer's office. He needs to attend day to day meetings with the customer and provide on call support when needed. During design phase he is expected to attend meetings with the customer and provide solutions.

- Has the employee been involved in the development of any internal products, processes, methodologies software, procedures, or services that are key to the company and/or its current client engagement?
  - If yes, please explain how.
  - If no, has the employee received any formal or informal training in relation to the above?

Yes. Mr. Mohammad Sajid is experienced with internal products like Resolve, and the project execution methodologies like Agile, the design and architecture of the applications.

- Explain how the employee obtained any expertise in relation to the company's production, research, equipment, techniques or management.

Mr. Mohammad Sajid obtained the desired experience and expertise through formal trainings, experience gained by working with similar projects/applications.

- Is the employee considered “key personnel” in the production and/or development of the product, process, software, procedure, or service that is integral to the current project? If so, please elaborate.

International Banking Platform project has been developed and implemented which targets end users who will actually use around 15 internal applications. Development is the first and ongoing phase of any software Development life cycle. As a part of this we have successfully implemented many business requirements into production. Right now we are supporting the existing applications and developing new business requirements.

Mr. Mohammad Sajid is a “key personal” in the development & maintenance of the project due to his vast experience in the international banking and financial systems which are gained after extensive training and working on the products.

Mr. Mohammad Sajid is having good experience in handling banking applications. So he is the only person having end to end Business and Technical knowledge on the current project.

#### **VIII - Advanced Level of Expertise:**

- Does the employee hold relevant industry experience to assume the position in Canada? Please explain the type of expertise the employee has acquired. (please refer to the individuals entire career)

Mr. Mohammad Sajid has strong technical skills in Java, J2EE software development technology.

- a) He is having good understanding of enterprise application software development process and software life cycle and having over 6 years and 10 months of software development experience.
  - b) He is skilled and well experienced in the following technological areas in web application development.  
Java/J2EE, Spring, JSF, Prime faces, HTML, CSS, java Script, web services (Spring and REST), Hibernate, GIT, Bit bucket, Clear Case, Maven, Sybase, Eclipse, RAD, Apache ANT, Apache Tomcat, Spring Tool suite, Angular2, Spring Boot, Spring cloud and Pivotal Cloud Foundry.
  - c) He is also having good domain skills in Banking, Finance, and Engineering.
  - d) He has functional expertise on banking systems in Bank of Nova Scotia and well versed with functionality of “Scotia Retail Banking” and focused mainly on Service tire and View tire at enterprise level.
- Explain whether the relevant experience would be difficult to export to another individual in a short period of time.

Mr. Mohammad Sajid has been involved in business critical engagements and gained significant knowledge of the complex software lending applications used at the Bank of Nova Scotia. It is difficult to find individuals with as varied expertise as Mr. Mohammad Sajid has and the knowledge he gained while working in the project for 1.8 years cannot be transferred to others in a short span of time. It is felt that the time and effort needed to export his knowledge to another individual involves significant cost to the Bank of Nova Scotia.

- How long would it take to train a Canadian with a basic IT background to perform this role?

It will take around 12 months of time to transfer the functional and technical knowledge to other individual having basic IT background.

Mr. Mohammad Sajid is responsible for training internally and/or externally with respect to the product, service, software, and/or methodology integral to the current project. Over a period of time, he will give on-job training to Scotiabank employees on these technologies and applications, which helps them to maintain these applications themselves in future.

- What is the extent to which the employee's specialized knowledge is uncommon within the organization and/or industry? For instance, how many others within the organization (local, Canadian and global) have such knowledge or experience?

Banking & Finance domain knowledge combined with skills in enterprise based online banking and finance, enterprise development and database programming is not commonly found. Considering his domain knowledge and his expertise in handling the challenges of developing critical and complex applications, we have very few experts available. Around 5% of the people in organization can have these special skills.

- How many individuals within your company have this skill set? Please include the number of overall employees in your company and the number that have the skill set to execute this engagement.
  - Company Overall strength – 80K+
  - Similar skill (technical) – 150+
- Does the employee have any unique skills or knowledge that distinguishes him/her from colleagues in his/her service line? Does he/she have any educational qualifications or qualifications that set him/her apart from others in the industry?

Yes. Mr. Mohammad Sajid experience in the banking operations combined with techno-functional skills in the banking business arena stand apart from other colleagues. His academic qualifications coupled with his experience in software development distinguish him from the colleagues in the team.

He holds a Bachelor of Technology and, has extensive hands on experience in software development and also an in-depth knowledge of the banking & finance domain to compliment his technical skills.

- Has the employee been involved in similar assignments before? Describe any projects and how integral the employee was to them. Please provide a breakdown of what the project was and a detailed description of the employees' role.

Mr. Mohammad Sajid has a working relationship 1.8 years with Bank of Nova Scotia and has been working with Bank of Nova Scotia for 1.8 years and has performed exceptionally well by managing the tasks with expertise and adding value at all times. He made a few recommendations that brought improvement to the development process followed at the Bank.

- How is the knowledge held by the foreign national essential for the performance of the job duties on the project in Canada? If so, please elaborate. What are the key skills which are central to performing the role?

The job requires an in-depth knowledge and rich experience in software development with hands on experience in enterprise application development of online brokerage related applications and a technical expertise in Java J2EE related technologies along with functional expertise on other the proprietary tools and third party systems interacting with brokerage applications.

Mr. Mohammad Sajid has sound knowledge, relevant experience, skills and qualifies for this job. He also understands, articulates, and implements best practices related to his area of expertise. The combination of the above expertise is essential for the successful implementation of this software product and knowledge transmission to the client.

- Explain whether the employee been responsible for training internally and/or externally with respect to the relevant company product, service, software, and/or methodology. If so, please provide details of such training, including whether training was formal or informal and the number of trainees.

Mr. Mohammad Sajid has experience in working with different tools, frameworks and technologies from past few years especially on Scotiabank related/specific tools like Investment banking, eJSF Framework, eSOA framework, Flex UI, etc to implement and support different client applications. He has complete understanding and extensive work experience on these applications. As part of current project, need to integrate all these applications.

In addition to that he is responsible for formal on-job training internally and/or externally with respect to the product, service, software, and/or methodology integral to the current project to Scotiabank employees working for International Banking team having around 10 members, which helps them to maintain these applications themselves in future.