**Dharani Y**

**Sr Hadoop Developer**

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**Professional Summary**

* Hadoop Developer with **8+ years** of overall IT experience in a variety of industries, which includes hands on experience in **Big Data** technologies.
* Have 4+ years of comprehensive experience in Big Data processing using Hadoop and its ecosystem (**MapReduce, Pig, Hive, Sqoop, Flume, Spark, Kafka and HBase**).
* Good working experience on **Spark** (spark streaming, spark SQL), **Scala** and **Kafka**.
* Extensively worked on **Spark** using **Scala** on cluster for computational (analytics), installed it on top of **Hadoop** performed **advanced analytical** application by making use of **Spark** with **Hive** and **SQL/Oracle**.
* Excellent Programming skills at a higher level of abstraction using **Scala, Java and Python**.
* Experience in using **D-Streams**, **Accumulator,Broadcastvariables**, **RDD caching** for Spark Streaming.
* Hands on experience in developing **SPARK** applications using **Spark tools** like RDD transformations, **Spark core**, **Spark MLlib**, **Spark Streaming** and **Spark SQL**.
* Strong experience and knowledge of real time data analytics using **Spark Streaming, Kafka** and **Flume**.
* Working knowledge of **Amazon’s** Elastic Cloud Compute(**EC2**) infrastructure for computational tasks and Simple Storage Service (**S3**) as Storage mechanism.
* Worked on reading multiple data formats on HDFS using **Scala**.
* Involved in converting Hive/SQL queries into Spark transformations using **Spark RDDs** and **Scala**.
* Good experience in creating and designing data ingest pipelines using technologies such as Apache **Storm**- **Kafka**.
* Experienced in working with in-memory processing framework like Spark Transformations, **SparkQL**, MLib and **Spark Streaming**.
* Expertise in creating Custom Serdes in **Hive.**
* Good working experience on using **Sqoop** to import data into HDFS from RDBMS and vice-versa.
* Experienced in implementing POC using **Spark Sql and Mlib libraries.**
* Improving the performance and optimization of the existing algorithms in Hadoop using Spark Context, **Spark-SQL**, Data Frame, Pair RDD's, YARN.
* Hands on experience in handling Hive tables using **Spark SQL.**
* Efficient in writing **MapReduce** Programs and using Apache Hadoop API for analyzing the structured and unstructured data.
* Expert in working with **Hive** data warehouse tool-creating tables, data distribution by implementing partitioning and bucketing, writing and optimizing the **HiveQL** queries.
* Debugging **Pig** and Hive scripts and optimizing MapReduce job and debugging Map reduce job.
* Administrator for **Pig**, **Hive** and **Hbase** installing updates patches and upgrades.
* Hands-on experience in managing and reviewing **Hadoop** **logs**.
* Good knowledge about **YARN** configuration.
* Expertise in writing Hadoop Jobs for analyzing data using Hive QL (Queries), Pig Latin (Data flow language), and custom MapReduce programs in Java.
* Extending Hive and Pig core functionality by writing custom UDFs.
* Experience in importing and exporting data using **Sqoop** from HDFS to **RelationalDatabase** Systems and vice-versa.
* Hands on experience in configuring and working with **Flume** to load the data from multiple sources directly into HDFS.
* Good working knowledge on **NoSQL** databases such as **Hbase**, **MongoDB** and **Cassandra**.
* Used **Hbase** in accordance with PIG/Hive as and when required for real time low latency queries.
* Knowledge of job workflow scheduling and monitoring tools like **Oozie** (hive, pig) and **Zookeeper** (Hbase).
* Integrated Apache Storm with Kafka to perform web analytics. Uploaded click stream data from Kafka to Hdfs, Hbase and Hive by integrating with **Storm**
* Developed various **shell scripts** and **python scripts** to address various production issues.
* Developed and designed automation framework using **Python** and Shell scripting
* Generated **Java APIs** for retrieval and analysis on No-SQL database such as **HBase** and **Cassandra**.
* Experience in **AWS EC2**, configuring the servers for Auto scaling and Elastic load balancing.
* Configuring AWS EC2 instances in VPC network & managing security through IAM and Monitoring servers health through Cloud Watch.
* Good Knowledge of data compression formats like **Snappy, Avro**.
* Developed automated workflows for monitoring the landing zone for the files and ingestion into HDFS in Bedrock Tool and **Talend**.
* Created **Talend** Jobs for data comparison between tables across different databases, identify and report discrepancies to the respective teams.
* Delivered zero defect code for three large projects which involved changes to both front end (**Core Java**, **Presentation services**) and back-end (**Oracle**).
* Experience with all stages of the SDLC and **Agile Development** model right from the requirement gathering to Deployment and production support.
* Involved in daily **SCRUM** meetings to discuss the development/progress and was active in making scrum meetings more productive.
* Also have experience in understanding of existing systems, maintenance and production support, on technologies such as Java, J2EE and various databases (Oracle, SQL Server).

**Technical Skills**

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| --- | --- |
| **Big Data** | Cloudera Distribution, HDFS, Zookeeper, Yarn, Data Node, Name Node, Resource Manager, Node Manager, Mapreduce, PIG, SQOOP, Hbase, Hive, Flume, Cassandra, MongoDB, Oozie, Kafka, Spark, Storm, Scala, Impala |
| **Operating System** | Windows, Linux, Unix. |
| **Languages** | Java, J2EE, SQL, PYTHON, Scala |
| **Databases** | IBM DB2, Oracle, SQL Server, MySQL, PostGres |
| **Web Technologies** | JSP, Servlets, HTML, CSS, JDBC, SOAP, XSLT. |
| **Version Tools** | GIT, SVN, CVS |
| **IDE** | IBM RAD, Eclipse, IntelliJ |
| **Tools** | TOAD, SQL Developer, ANT, Log4J |
| **Web Services** | WSDL, SOAP. |
| **ETL** | Talend ETL, Talend Studio |
| **Web/App Server** | UNIX server, Apache Tomcat |

**Professional Experience:**

**Sr. Big Data Developer OCT 2017 - Present**

**Company: QBE Insurance North America,WI**

**Responsibilities:**

* Analyzed large and critical datasets using Cloudera, HDFS, HBase, MapReduce, Hive, Hive UDF, Pig, Sqoop, Zookeeper and Spark.
* Developed Spark Applications by using Scala, Java and Implemented Apache Spark data processing project to handle data from various RDBMS and Streaming sources.
* Worked with the Spark for improving performance and optimization of the existingalgorithms in Hadoop using Spark Context, Spark-SQL, Spark MLlib, Data Frame, Pair RDD's, Spark YARN.
* Used Spark Streaming APIs to perform transformations and actions on the fly for buildingcommon learner data model which gets the data from Kafka in Near real time and persist it to Cassandra.
* Developed **Kafka consumer's API** in Scala for consuming data from **Kafka topics.**
* Consumed **XML messages** using **Kafka** and processed the xml file using **Spark Streaming** to capture **UI updates**.
* Developed Preprocessing job using Spark Data frames to **flatten Json** documents to flat file.
* Load **D-Stream** data into **Spark RDD** and do **in memory** data Computation to generate Output response.
* Experienced in writing live **Real-time Processing** and **core jobs** using **Spark Streaming** with **Kafka** as a data pipe-line system.
* Worked and learned a great deal from **AWS** Cloud services like **EC2, S3, EBS, RDS** and **VPC**.
* Migrated an existing on-premises application to **AWS**. Used **AWS** services like **EC2** and **S3** for small data sets processing and storage, **Experienced** in Maintaining the Hadoop cluster on **AWS EMR**.
* Imported data from **AWS S3** into **Spark RDD,** Performed **transformations** and **actions** on **RDD's**
* Gathered the business requirements from the Business Partners and Subject Matter Experts
* Developed environmental search engine using **JAVA**, **ApacheSOLR** and **Cassandra**.
* Managed works including indexing data, tuning relevance, developing custom tokenizers and filters, adding functionality includes playlist, custom sorting and regionalization with **SOLR** Search Engine.
* Ingested data from RDBMS and performed data transformations, and then export the transformed data to **Cassandra** as per the business requirement.
* Written multiple **MapReduce** programs for data extraction, transformation and aggregation from multiple file formats including **XML**, **JSON**, **CSV**& other compressed file formats.
* Developed automated processes for flattening the upstream data from **Cassandra** which in JSON format. Used Hive UDFs to flatten the JSON Data.
* Optimized **MapReduce** Jobs to use **HDFS** efficiently by using various compression mechanisms
* Developed **PIGUDFs** to provide **Pig** capabilities for manipulating the data according to Business Requirements and worked on developing custom **PIG** Loaders and Implemented various requirements using **Pig** scripts.
* Experienced on loading and transforming of large sets of structured, semi structured and unstructured data
* Created **POC** using **SparkSql** and **Mlib** libraries.
* Developed a **Spark** Streaming module for consumption of Avro messages from **Kafka**.
* Implementing different machine learning techniques in **Scala** using **Scala** machine learning library, and created POC using **SparkSql** and **Mlib** libraries.
* Experienced in Querying data using **SparkSQL** on top of Spark Engine, implementing Spark RDD’s in Scala.
* Expertise in writing **Scala** code using Higher order functions for iterative algorithms in **Spark** for Performance considerations.
* Experienced in managing and reviewing **Hadoop** log files
* Worked with different File Formats like **TEXTFILE**, **AVROFILE**, **ORC**, and **PARQUET** for **HIVE** querying and processing.
* Create and Maintain **Teradata** Tables, Views, Macros, Triggers and Stored Procedures
* Monitored workload, job performance and capacity planning using **Cloudera** Distribution.
* Worked on Data loading into **Hive** for **DataIngestion** history and Data content summary.
* Involved in developing **Impala** scripts for extraction, transformation, loading of data into data warehouse.
* Used **Hive** and **Impala** to query the data in HBase.
* Created **Impala** tables and SFTP scripts and Shell scripts to import data into Hadoop.
* Developed **Hbasejava** client **API** for **CRUD** Operations.
* Created **Hive** tables and involved in data loading and writing **HiveUDFs.** Developed **HiveUDFs** for rating aggregation
* Generated **JavaAPIs** for retrieval and analysis on **No**-**SQL** database such as **HBase** and **Cassandra**
* Provided ad-hoc queries and data metrics to the Business Users using **Hive**, **Pig**
* Did various performance optimizations like using distributed cache for small datasets, **partition** and **bucketing** in **hive**, doing **mapsidejoins** etc
* Worked on importing and exporting data from **Oracle** and **DB2** into **HDFS** and **HIVE** using **Sqoop** for analysis, visualization and to generate reports.
* Involved in file movements between HDFS and **AWS** S3 and extensively worked with S3 bucket in **AWS**
* Experienced with **AWSAZURE** services to smoothly manage application in the cloud and creating or modifying the instances.
* Created data pipeline for different events of ingestion, aggregation and load consumer response data in **AWS** S3 bucket into Hive external tables in HDFS location to serve as feed for tableau dashboards.
* Used **EMR (Elastic Map Reducing)** to perform bigdata operations in AWS.
* Worked on Apache spark writing python applications to convert txt, xls files and parse.
* Developed Python scripts, UDF's using both Data frames/SQL and RDD/MapReduce in Spark for Data Aggregation, queries and writing data back into RDBMS through Sqoop.
* Installed the application on **AWS** EC2 instances and configured the storage on S3 buckets.
* Loading data from different source (database & files) into Hive using **Talend** tool.
* Implemented **Spark** using Python/Scala and utilizingSpark Core, **Spark Streaming** and Spark SQL for faster processing of data instead of MapReduce in Java
* Experience in integrating Apache **Kafka** with Apache **Spark** for real time processing.
* Exposure on usage of Apache **Kafka** develop data pipeline of logs as a stream of messages using producers and consumers.
* Scheduled **Oozie** workflow engine to run multiple **Hive** and **Pigjobs**, which independently run with time and data availability
* Worked on custom **Pig** Loaders and Storage classes to work with a variety of data formats such as **JSON**, Compressed **CSV** etc
* Involved in running **Hadoop** Streaming jobs to process Terabytes of data
* Used **JIRA** for bug tracking and **CVS** for version control.

**Environment: Hadoop, Map Reduce, Hive, HDFS, PIG, Sqoop, Oozie, Cloudera, Flume, HBase, SOLR, CDH3, Cassandra, Oracle, Unix/Linux, Hadoop, Hive, PIG, SQOOP, Flume, HDFS, J2EE, Oracle/SQL & DB2 , Unix/Linux, JavaScript, Ajax, Eclipse IDE, CVS, JIRA,AZURE**

**Big Data Engineer May 2016 – Sep 2017**

**Company: Infoworks , Palo Alto , CA**

**Responibilities:**

* Primary responsibilities include building scalable distributed data solutions using **Hadoop** ecosystem.
* Experienced in designing and deployment of Hadoop cluster and differentbig data analytic tools including **Pig**, **Hive**, **Flume**, **Hbase** and **Sqoop**.
* Imported weblogs and unstructured data using the **Apache Flume** and store it in Flume channel.
* Loaded the CDRs from relational DB using **Sqoop** and other sources to Hadoop cluster by **Flume.**
* Developed business logic in **Flume interceptor** in **Java.**
* Implementing quality checks and transformations using **Flume Interceptor**.
* Developed simple and complex **MapReduce** programs in **Hive, Pig** and **Python** for Data Analysis on different data formats.
* Performed data transformations by writing **MapReduce** and **Pig** scripts as per business

requirements.

* Implemented **Map Reduce** programs to handle semi/unstructured data like **xml**, **json**, **Avro** data files and **sequence** files for **log** files.
* Developed various **Python scripts** to find vulnerabilities with **SQL** Queries by doing SQL injection, permission checks and analysis.
* Experienced in **Kerberos** authentication to establish a more secure network communication on the cluster.
* Analyzed substantial data sets by running **Hive** queries and **Pig scripts.**
* Managed and reviewed **Hadoop** and **HBase** log files.
* Experience in creating tables, dropping and altered at run time without blocking updates and queries using **HBase** and Hive.
* Experienced in writing **Spark Applications** in **Scala** and **Python.**
* Used **SparkSQL** to handle structured data in Hive.
* Imported semi-structured data from Avro files using **Pig** to make serialization faster
* Processed the web server logs by developing **Multi-hop** flume agents by using **AvroSink** and loaded into **MongoDB** for further analysis.
* Experienced in converting **Hive/SQL** queries into **Spark** transformations using **SparkRDD**, **Scala** and **Python.**
* Experienced in connecting **Avro Sink** ports directly to **Spark Streaming** for analyzation of weblogs.
* Imported data from **AWSS3** and into **SparkRDD** and performed transformations and actions on **RDD’s**.
* Involved in making **Hive** tables, stacking information, composing hive inquiries, producing

segments and basins for enhancement.

* Managing and scheduling Jobs on a Hadoop Cluster using **Oozie** workflows and Java schedulers.
* Continuous monitoring and managing the Hadoop cluster through **Hortonworks(HDP)** distribution.
* Configured various views in **Ambari** such as **Hive** view, **Tez** view, and **Yarn** Queue manager.
* Involved in review of functional and non-functional requirements.
* Indexed documents using Elastic search.
* Worked on **MongoDB** for distributed Storage and Processing.
* Implemented Collections and Aggregation Frameworks in **MongoDB.**
* Implemented B Tree Indexing on the data files which are stored in **MongoDB.**
* Good knowledge in using **MongoDBCRUD** operations.
* Responsible for using **Flume sink** to remove the date from **Flume channel** and deposit in No-SQL database like **MongoDB**
* Implemented **Flume NG MongoDB sink** to load the JSON- styled data into **MongoDB.**
* Involved in loading data from **UNIX** file system and **FTP** to **HDFS.**
* Developed workflow in **Oozie** to automate the tasks of loading the data into **HDFS** and pre-processing with **Pig.**
* Loaded JSON-Styled documents in NoSQL database like **MongoDB** and deployed the data in cloud service **Amazon Redshift.**
* Responsible for developing data pipeline with **Amazon AWS** to extract the data from weblogs and store in **Amazon EMR,AZURE.**
* Used **Zookeeper** to provide coordination services to the cluster.
* Created **Hive** queries that helped market analysts spot emerging trends by comparing fresh data withreference tables and historical metrics.
* Involved in migrating tables from **RDBMS** into **Hive** tables using **SQOOP** and later generated data visualizations using **Tableau**.
* Experience in processing large volume of data and skills in parallel execution of process using **Talend** functionality.
* Designed and implemented **Spark** jobs to support distributed data processing.
* Experience in optimizing **Map Reduce** Programs using combiners, partitioners and custom

counters for delivering the best results.

* Written Shell scripts to monitor the health check of **Hadoop** daemon services and respond

accordingly to any warning or failure conditions.

* Involved in **Hadoopcluster** task like Adding and Removing Nodes without any effect to running jobs and data.
* Followed **Agile** methodology for the entire project.
* Experienced in Extreme Programming, Test-Driven Development and **Agile Scrum**

**Environment: Hortonworks(HDP), Hadoop, Spark, Sqoop, Flume, Elastic Search, AWS, EC2, S3, Pig, Hive, MongoDB, Java, Python, MapReduce, HDFS, Tableau, Informatica.**

**Hadoop Developer Jul 2015 – Mar 2016**

**Hartford Financial Services Group, Hartford, Ct**

**Responsibilities:**

* Analyzing Hadoop cluster and different big data analytic tools including **Pig, HBase** and **Sqoop**.
* Worked with Linux systems and RDBMS database on a regular basis in order to ingest data using Sqoop.
* Collected and aggregated large amounts of web log data from different sources such as webservers, mobile and network devices using Apache and stored the data into HDFS for analysis.
* Strong knowledge on creating and monitoring cluster on Hortonworks Data platform.
* Developed Unix shell scripts to load large number of files into **HDFS** from **Linux File System**
* Developed Custom Input Formats in **MapReduce jobs** to handle custom file formats and to convert them into key-value pairs.
* Involved in making **Hive tables**, stacking information, composing hive inquiries, producing segments and basins for enhancement.
* Created the Hive external tables using Accumulo connector.
* Designed and implemented **HIVE** queries and functions for evaluation, filtering, loading and storing of data.
* Extensive experience in writing UNIX shell scripts and automation of the **ETL processes** using UNIX shell scripting.
* Design, develop, test, implement and support of Data Warehousing ETL using Talend and Hadoop Technologies.
* Involved in performance tuning of the ETL process by addressing various performance issues at the extraction and transformation stages.
* Worked with BI teams in generating the reports and designing ETL workflows on **Tableau**
* Prepared the Technical Specification document for the ETL job development.
* Involved in loading data from **UNIX** file system and **FTP** to **HDFS**
* Used **HIVE** to do transformations, event joins and some pre-aggregations before storing the data onto HDFS.
* Developed UDF's in java for enhancing functionalities of **Pig** and **Hive** scripts.
* Experienced in working with spark eco system using **Spark SQL** and **Scala** queries on different formats like Text file, CSV file.
* Implemented Daily **Cron jobs** that automate parallel tasks of loading the data into **HDFS** and pre-processing with **Pig** using **Oozie co-coordinator** jobs.
* Worked on the Ad hoc queries, Indexing, Replication, Load balancing, Aggregation in **MongoDB**.
* Experience in managing MongoDB environment from availability, performance and scalability perspectives.
* Developed Spark code using Scala and Spark-SQL for faster testing and data processing.
* Wrote Flume configuration files for importing streaming log data into **HBase** with **Flume.**

**Environment: Hadoop, HDFS, Hortonworks, pig, Hive, HBase, Flume, Sqoop, Oozie, Python, Unix, Shell Scripting, Talend, Tableau, Scala Spark, Spark SQL, Mongo dB.**

**Role:Hadoop Developer Aug 2014 – Jun 2015CenterPoint Energy, Houston, Texas**

* Experience in Importing and exporting data into HDFS and **Hive** using **Sqoop.**
* Developed **Flume Agents** for loading and filtering the streaming data into HDFS.
* Experienced in handling data from different data sets, join them and preprocess using **Pig** join operations.
* Moving Bulk amount data into **HBase** using Map Reduce Integration.
* Developed **Map-Reduce** programs to clean and aggregate the data
* Developed HBase data model on top of HDFS data to perform real time analytics using Java API.
* Developed different kind of custom filters and handled pre-defined filters on HBase data using API.
* Strong understanding of Hadoop eco system such as HDFS, MapReduce, HBase, Zookeeper, Pig, Hadoop streaming, Sqoop, Oozie and Hive
* Implement counters on HBase data to count total records on different tables.
* Experienced in handling **Avro** data files by passing schema into HDFS using Avro tools and Map Reduce.
* Worked on custom Pig Loaders and Storage classes to work with a variety of data formats such as JSON, Compressed CSV, etc.
* Implemented Secondary sorting to sort reducer output globally in map reduce.
* Implemented data pipeline by chaining multiple mappers by using Chained Mapper.
* Created Hive Dynamic partitions to load time series data
* Experienced in handling different types of joins in **Hive** like Map joins, bucker map joins, sorted bucket map joins.
* Created tables, partitions, buckets and perform analytics using **Hive** ad-hoc queries.
* Experienced import/export data into HDFS/Hive from relational data base and Tera data using **Sqoop**.
* Handling continuous streaming data comes from different sources using **flume** and set destination as HDFS.
* Integrated spring schedulers with Oozie client as beans to handle cronjobs.
* Experience with **CDH** distribution and Cloudera Manager to manage and monitor Hadoop clusters
* Actively participated in software development lifecycle (scope, design, implement, deploy, test), including design and code reviews.
* Involved in story-driven agile development methodology and actively participated in daily scrum meetings.

**Environment: Hadoop, HDFS, Map Reduce, Hive, Pig, Hbase, Sqoop, RDBMS/DB, Flat files, Mysql, CSV, Avro data files.**

**Java/J2EE Developer April 2012- July 2014**

**Bias Infotech , IN**

**Responsibilities:**

* Designed and developed a system framework using J2EE technologies based on **MVC architecture.**
* Followed agile methodology to implement the requirements and tailored the application to customer needs.
* Involved in the phases of **SDLC** (Software Development Life Cycle) including Requirement collection, Design and analysis of Customer specification, Development and Customization of the application
* Developed and enhance web applications using **JSTL, JSP, Java script, AJAX, HTML, CSS** and **collection.**
* Developed the UI components using **JQuery** and **JavaScript** Functionalities.
* Developed J2EE components on **Eclipse IDE**.
* Created the EAR and WAR files and deployed the application in different environment.
* Used JNDI as part of service locator to locate the Factory objects, Data Source Objects and other service factories.
* Hands on experience using **Teradata** utilities (FastExport, MultiLoad, FastLoad, Tpump, BTEQ and QueryMan).
* Implemented test scripts to support test driven development and continuous integration.
* Modifications on the database were done using Triggers, Views, Stored procedures, **SQL** and **PL/SQL**.
* Implemented the mechanism of logging and debugging with **Log4j**.
* Used JIRA as a bug-reporting tool for updating the bug report.

**Environment: Java, J2EE, Servlets, JSP, Struts, Spring, Hibernate, JDBC, JNDI, JMS, JIRA, JavaScript, XML, DB2, SVN, log4j.**

**Role: Java DeveloperMay 2010 - Mar 2012**

**Client: SoftPal Technologies, India**

* Involved in designing development, integration testing of modules , requirements .
* Worked on Use case diagrams class diagrams and sequence diagrams using Rational rose for design phase.
* Used Agile methodology for the every module in project for developing the application.
* Developed the application implementing **Spring MVC** Architecture with **Hibernate as ORM** framework.
* Developed the application using **Front Controller, Business delegate, DAO and Session Facade patterns**.
* Designed and developed User Interface using **JSP, HTML, CSS , MXML,JSF, JSP, JSTL, AJAX and XML** also involved in Designing and developing several Flex UI Screens.
* Involved in Design and developing user interface using Flex Components ViewStack, Checkboxes, Repeater, Title.
* Involved in developing database transactions through **JDBC.**
* Used **XML**using **DOM** and **SAX** parsers between different components for transferring the data.
* Extensively worked in developing **Custom tags** from **Struts tags** for highlighting the invalid input fields if validation error occurs.
* Developed WSDL based web services using **WSDL, SOAP, JAX-WS, AXIS, APACHE X FIRE, JAXB .**
* Used web services like **RESTFUL** for developing **XML** and **JSON** using **JAX-RS**
* Used **CSV** for version control.
* Developed and deployed the applications using servers like **Apache Tomcat, JBoss.**
* Created test cases by using **Junit Flex unit**.
* Wrote **Maven** build scripts for building applications.

**Environment**:**Java, J2EE, MVC, Servlets, Spring, JSP, XML, HTML, MXML, Maven, Adobe flex builder, Flex API ,Blaze DS, Flex, Tag libs, REST, CSS, JavaScript, JQuery, AJAX, JSON, CAS, Eclipse, Apache Tomcat 7,JBoss , Web Services WSDL, SOAP, Restful, Junit Flex unit , Clear Case,**