BALASUBRAMANIAN R
Engineer

SUMMARY

An experienced professional with a demonstrated expertise in solving day to day problems in Utilities industry with the help of a wide range of technical skills like OOPS based programming , procedural scripting, database modelling and domain knowledge of GIS and SCADA/DMS.

With the knowledge of Oracle, PL/SQL and basics of NoSQL, I was able to highlight my analytical skills on various occasions. The versatility and adaptability to different technologies ranging from VB to Python has always been recognized and rewarded. I have put my keen interest on data structures and algorithms to solve a problem than to just program a piece of code.

I am strong enthusiast of "Data" as a domain and "Data" as the future, and I am continuously marching towards it as a long-term goal.

Diligence and the interest to learn new things in the direction of combined progress of self and the organization has been always my driving force.

TECHNICAL SKILLS

- C/C++ (Object Oriented Programming)
- Python (Pandas, NumPy, SciPy)
- Basics of C#

- RDBMS(Oracle PL/SQL, SQLite)
- Oracle Spatial (GIS)
- Basics of MongoDB and Cassandra
- ODBC

- Windows batch/VB Scripting
- Basics of Unix scripting

- Data structures and algorithms
- Multiprocessing concepts
- Memory management in Python/C

- OS - Windows and Unix platforms

WORK EXPERIENCE – 3 Years 4 Months

Open Systems International Inc., Engineer
May 2019- Present

➢ **Python Application Development for Small Signal Stability Analysis**
o Developed a Python application based on Pandas data frames and modules like NumPy, SciPy and Matplotlib to analyze electrical data fed in flat file format and to find the chances of disturbances in the waveforms. Data is analyzed to find underdamped and small signal oscillation based on frequency and damping constant.

o Implemented signal processing methods like Fast Fourier Transform, Prony Model Fit and Pseudo inversing using SciPy module to preprocess the signal data and do the analysis.

o Preprocessing of the data carried out to get the best window of data in accordance with the use of statistical modelling by considering mean and variance of the data.

o Matplotlib functions used to plot the resulting waveforms in form sinusoids and analysis results in form of histograms.

o Multiprocessing concept implemented for faster execution using the asynchronous methodology of processing.

➢ **Interfaces/Programs developed in C/Python for data load and computation**

o **Data Load Modules developed in C** to read csv flat files and loads data into the in-house RDBMS databases. The modules designed in a way to do mathematical computation on the data and load them periodically every time a new file is placed in a location. The workflow is designed along with a Unix shell script, which triggers the program.

o **Data Interpolation module developed in C**: Algorithm developed in C in order to interpolate between two values based on the initial values and the current value. This is achieved by considering the slope or rate of change of value. Once user enters a value, the slope is recalculated and new values are published.

o **Python interface using Swagger API:** Python script developed to pull data out of Cassandra/MongoDB by hitting the web services provided by Swagger API. The resulting JSON output is converted to data frames and processed further. It is loaded into the in-house RDBMS databases.

➢ **Reporting/metrics calculation from data extracted from Cassandra**

o Developed an Excel Macro to pull data from Cassandra data using ODBC and to do mathematical computation to arrive at metrics. Action buttons and month selector interface were implemented for better user experience.

o Python scripting used to dump the data from Cassandra (NoSQL) DB into SQLite DB using ODBC and further reporting was done with help of SQL/Python combination.

➢ **Python based automation** to find out the inconsistencies within RDBMS Databases and generate reports on demand.

TOOLS/APPLICATIONS

- Visual Studio/Eclipse
- Intergraph G/Technology
- Safe FME(ETL Tool)
- ArcMap (ArcGIS)
- Toad/SQL Developer
- Microsoft Excel/Macros

DOMAIN SKILLS

- Geographic Information Systems (GIS)
- SCADA/DMS and interfaces
- CIM (Common Information Model) Standard XML
- Energy and Utility Processes

CONTACT

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Infosys Ltd, Senior Systems Engineer / GIS Developer
June 2016 – April 2019

➢ **Electronic Configuration Project** changes for Schneider DMS/SCADA
o Worked on the **C# programming** and Oracle metadata modelling for the GIS-DMS interface for sending data to the Schneider Telvent SCADA systems in form of CIM standards.
o Developed new templates to send Switch Gear feature and graphical feature data in terms of CIM xml format.
o Worked on FME for the export of Design Area in form of ESRI Shape files

➢ **Locus View Project** for creation of new features in G/Technology
o Developed a new whole feature Service Tap in G/Technology using **PL/SQL**.
o Worked on the requirement gathering, analysis, coding and unit testing part of the feature enablement.

➢ **Development of tools in PL/SQL for processing Oracle Spatial data**
o Created functions and procedures for finding spatial relation between multiple features and processing them according to business needs.

➢ **Python scripting**
o Worked on ArcPy for integration with SharePoint for external interfaces
o Worked on Python of ArcMap for creation of geoprocessing functionalities

➢ **Experience on FME**
o Worked on Spatial ETL tool FME for extraction of Oracle spatial data into ESRI native Shape files and File geodatabase formats.
o Expertise on data mapping and transformation according to business needs.

EDUCATION

Bachelor of Technology-Electronics and Communication Engineering
2012-2016
- College of Engineering, Perumon CUSAT, Kerala
- CGPA: 7.99

All India Senior School Certificate Examination (10+2) Computer Science
2012
- Mannam Memorial Senior Secondary Public School, Kollam, Kerala
- Percentage: 86 %

All India Secondary School Examination
2010
- Mannam Memorial Senior Secondary Public School, Kollam, Kerala
- Percentage: 95 %

ACHIEVEMENTS & RECOGNITIONS

- Awarded the "**Most Valuable Player**" award for the year 2017-2018 for the contributions in **Infosys** Utilities Domain.
- Team member of the GIS team which got the "**Best Team Award**" for 2017-2018 FY in **Infosys**