**A REPORT**

**ON**

**AUTOMATION OF SEVERAL EXISTING PROCEDURES**

**By**

**Name of the student ID No.**

**Hritik Soni 2014A2PS0480P**

# AT

**JDA Software Solutions, Bangalore**

A Practice School II Station of

****

##### BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

**(September, 2017)**

**A REPORT**

**ON**

**AUTOMATION OF SEVERAL EXISTING PROCEDURES**

**By**

Name of the student ID No. Discipline

Hritik Soni 2014A2PS0480P Civil Engineering

## Prepared in the partial fulfillment of the

Practice School II Course

# AT

JDA Software, Bangalore

A Practice School II Station of

****

##### BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

**(September, 2017)**

**Acknowledgements:**

There is no project without sources of motivation. In my case I would first like to thank BITS Pilani for giving me the opportunity for an Internship here at JDA Software, the HR Manager for accepting me as an intern, Mr. Raghuram Thaiyar (My Manager) for providing an excellent mentor for my project, Mr. Harish Ramapur Narayanappa(My Primary Mentor), Gaston Mascarenhas (My Secondary Mentor), Mr. Anand Yadav for providing me guidance for my project and finally my parents and everyone else who indirectly helped me during the course of my project.

# Abstract Sheet

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE

**PILANI (RAJASTHAN)**

**Practice School Division**

**Station: JDA Software Centre:** **Bangalore**

**Duration: 6 Months Date of Start:**  **4th July 2017**

**Date of Submission:** **12th September 2017**

**Title of the Project: AUTOMATION OF SEVERAL EXISTING PROCEDURES**

**ID No./Name(s)/: 2014A2PS0480P/Hritik Soni/B.E.Civil**

**Discipline(s) of the**

**Student(s)**

**Name(s) and: Harish Ramapur Narayanappa / Enterprise Senior Architect**

**Designation(s) Gaston Mascarenhas / Project Manage**

**of the expert(s)**

**Name(s) of the: Mr. Vineet Garg**

**PS Faculty**

**Key Words: Supply chain management, SCPO, Log Analyzer, Upgrade Automation**

**Project Areas: Development of Automation Interfaces**

**Abstract: My Project is a combination of three subprojects which achieve different goals with same concept i.e. Automation of Redundant and Time-Consuming Activities using GUI interface.**

**Following are my three projects with a brief description:**

1. **Automated Log Analyzer: Helps in finding causes of incidents by analyzing log files for errors by preparing frequency histograms of all kinds of errors.**
2. **JDA Server Manager: Web Interface for managing services running on JDA Servers and also classifying Servers based on their related Customer.**
3. **Upgrade Manager: All-in-one interface for performing one step migration while adhering to official procedures.**

Signature(s) of Student(s) Signature of PS Faculty

Date 9th September 2017

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE**

**PILANI (RAJASTHAN)**

**PRACTICE SCHOOL DIVISION**

# Response Option Sheet

Station: JDA Software Center: Bangalore

ID No. & Name(s): Hritik Soni

Title of the Project: **AUTOMATION OF SEVERAL EXISTING PROCEDURES**

Usefulness of the project to the on-campus courses of study in various disciplines. Project should be scrutinized keeping in view the following response options. Write Course No. and Course Name against the option under which the project comes.

Refer Bulletin for Course No. and Course Name.

|  |  |  |
| --- | --- | --- |
| Code No. | Response Option | Course No.(s) & Name |
| 1. | A new course can be designed out of this project. | No |
| 2. | The project can help modification of the course content of some of the existing Courses | No |
| 3. | The project can be used directly in some of the existing Compulsory Discipline Courses (CDC)/ Discipline Courses Other than Compulsory (DCOC)/ Emerging Area (EA), etc. Courses | No |
| 4. | The project can be used in preparatory courses like Analysis and Application Oriented Courses (AAOC)/ Engineering Science (ES)/ Technical Art (TA) and Core Courses. | No |
| 5. | This project cannot come under any of the above mentioned options as it relates to the professional work of the host organization. | Yes |

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Signature of Student Signature of Faculty

Date: Date:

##### FORMAT FOR NO DUES CERTIFICATE

PS II station at: JDA Software, Bangalore Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: Hritik Soni ID No. : 2014A2PS480P will be completing his/her Practice School Program on 15th Dec’ 2017. In case he /she has any dues, please report it below against your name. Incase he/she has no dues please write NO DUES and sign.

1. Organization Coordinator :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Professional Expert :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Librarian :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Accounts Section :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. PS Faculty :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Any Other :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Any Other :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature of PS Faculty

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INTRODUCTION

JDA is an application meant for interested customers to use it. Beyond development of the actual utility comes maintenance which is perhaps the most challenging part as unexpected situations can arise and they need to be dealt immediately. The Project comprises of three sub project each serving to help the maintainability of the architecture of JDA in different aspects.

1. Automated Log File Analyzer:

Whenever an error/incident is encountered, database logs are the main source of its identification (in many cases) and thus need to be inspected thoroughly. My first Project attempts to ease the inspection significantly. It has the following major functionalities:-

1. GUI based mode for easy to use and self-explanatory functioning.
2. Automatic/Script based mode for batch processing.
3. Capability to handle several logs and several patterns of errors.
4. Frequency histograms of errors found in Bar Chart based formats.
5. Automatic mailing of the output charts at every specified duration.
6. JDA Server Manager:

A key part of the maintenance is the ability to control services on remote and servers and being able to grab details like RAM free, CPU usage, etc. on them and also able to seamlessly do all this for any desired customer without much effort. This part of the project attempts to solve this problem via. providing a web interface to do all mentioned above.

1. Upgrade Manager:

It is nature of every application to evolve and gain more abilities and thus the JDA application also gains new versions and the most challenging part is the ability to migrate existing customers to the latest platform. Long procedures already exist to do the same and are very time consuming. This part of the project attempts to simplify all the steps via a GUI based automated procedure.

Automated Log Analyzer

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Every JDA application is associated with a database and every database has its own server just like the application. The choice of database for JDA happens to be Oracle which is an expensive database management system but very robust. During maintenance phase of the application, unexpected situations can arise. These situations are termed as incidents and a lot of incidents have their solutions hidden in the database logs. As of now, these logs are analyzed manually via. 3rd party tools but even through them it is quite time consuming.

Every error has a certain pattern and using creative programming all of these tasks can be turned to an automated task.

A Sample Error Would be:

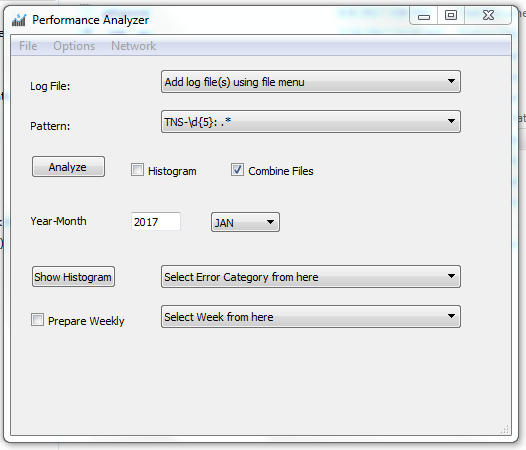
TNS-12547: TNS:lost contact

ns secondary err code: 12560

nt main err code: 0

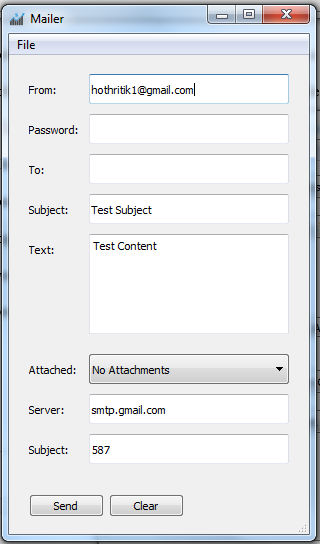
nt secondary err code: 0

nt OS err code: 0

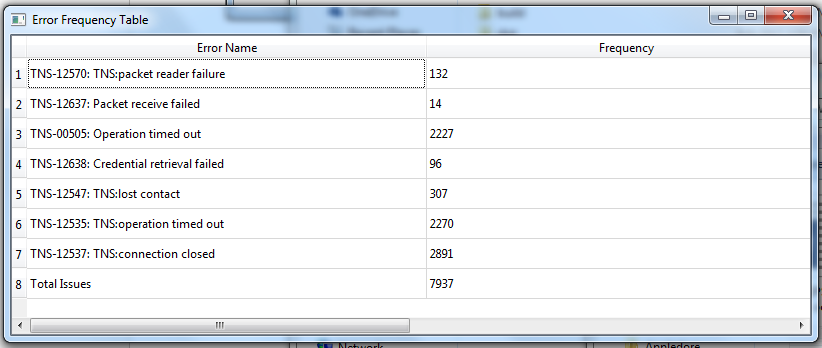
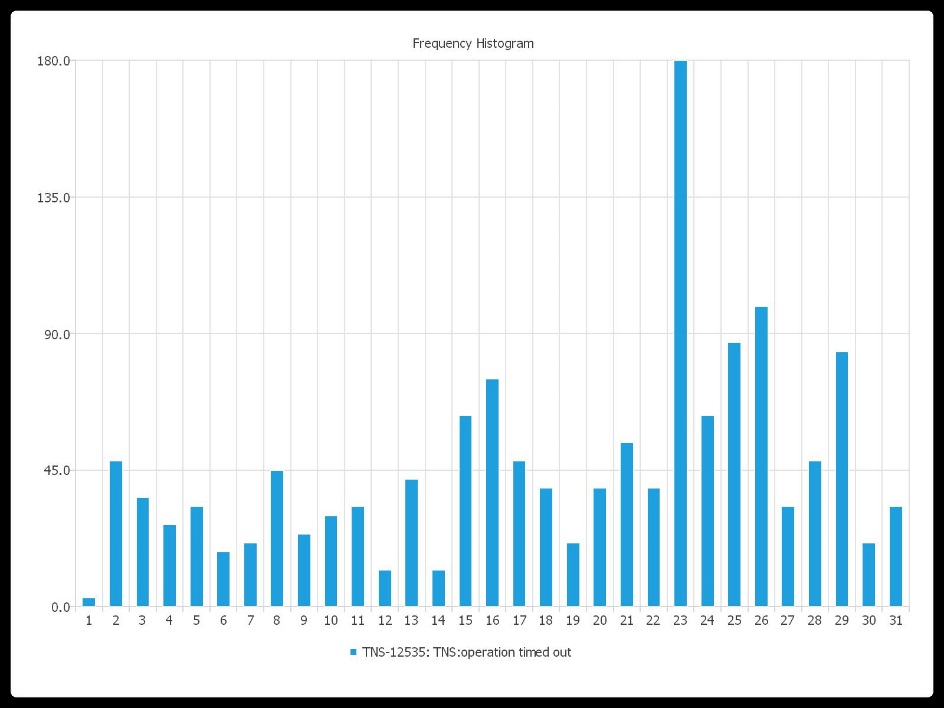
There is a little bit more information related to the error like data information and the above is sufficient to demonstrate the point. As we can observe the error starts with TNS-….. This trend is common for every error and thus can be exploited to find several errors within thousands of lines in a fraction of a second. The following is a screenshot of the opening screen.

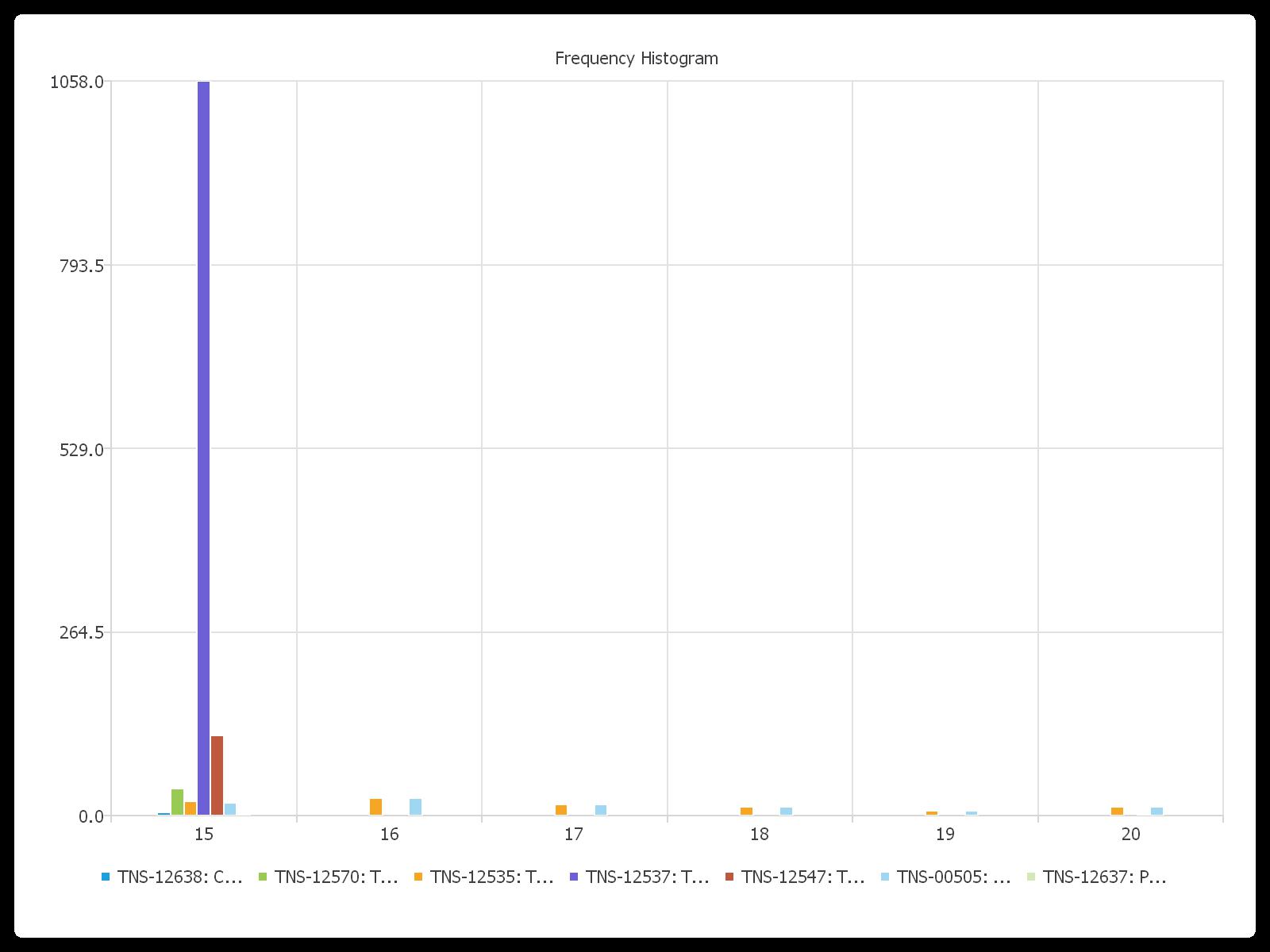
It looks very similar to a professional interface with a standard menu bar and widgets that serve the objective. Log file(s) can be selected from the File Menu and will appear in front of the Log File Label. Any custom error pattern can be entered or can be loaded via. Options menu. The combine files option gives the tool an ability to combine outputs of several log files together.

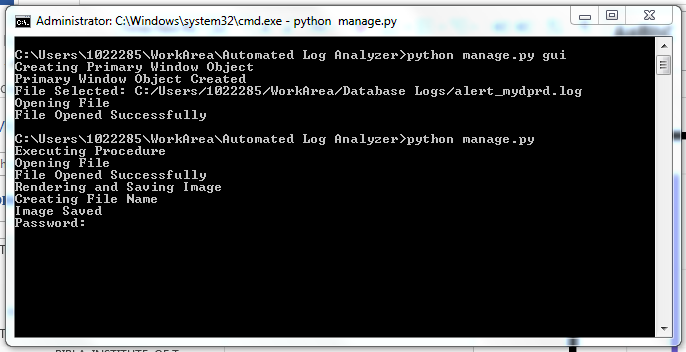
If someone is interested in more than finding the frequencies of the error he can also check the histogram check box to exploit date base information to prepare frequency histograms (monthly or weekly). The Network menu has a mailer tool for mailing the outputs generated to a certain someone. A view of the mailer is shown below:



The mailer tool is just a side tool developed if for some reason someone wanted to mail something using a GUI interface. The main reason to develop was mainly to develop the associated functions so that the mailing can be done without user intervention in console mode. In fact, the whole tool namely Automated Log Analyzer can run in auto mode without any user intervention. A few screenshots of the outputs and its functioning in auto mode is displayed below.







Future Planning

The tool is ready to be deployed on a centralized server to collect logs from various sources, analyze them and shoot mails on a pre-defined manner. The idea has been submitted and as soon as the community approves, this project will be deployed.

JDA Server Manager