

# **Electronic Data Interchange (EDI)**

**SEPC ZG629T: Dissertation**

by

Arpit Kumar Tiwari

2015HP93018

**Dissertation work carried out at  
Capgemini Technology Services India Limited, Chennai**



**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE  
PILANI (RAJASTHAN)**

June 2017

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**Capgemini Technology Services India Limited, Chennai**

Submitted in partial fulfillment of M.Tech. Software Engineering degree  
programme

Under the Supervision of

Suresh C, Project Lead,

Capgemini Technology Services India Ltd, Chennai



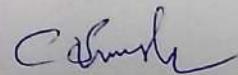
**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE**

**PILANI (RAJASTHAN)**

June 2017

## **CERTIFICATE**

This is to certify that the Dissertation entitled Electronic Data Interchange and submitted by Arpit Kumar Tiwari having ID-No. 2015HP93018 for the partial fulfillment of the requirements of M.Tech. (Software engineering) degree of BITS, embodies the bonafide work done by him/her under my supervision.



Signature of the Supervisor

Place : CHE NNAI

Date : 1 / 6 | 2017

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**ABSTRACT**

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**DISSERTATION TITLE** : Electronic Data Interchange (EDI)

**ABSTRACT :** EDI , an automated system build with the purpose of completely removing the generation and delivery of hardcopy invoices and hence generating and sending invoices electronically using the industry and home grown standards which result in saving cost and time.

**Broad Academic Area of Work:** Software Engineering & Management

**Key words :** CSS, DB2, HTML, iBatis, Javascript , Java EE, Java SE , Struts

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# **Chapter 1**

## **Introduction**

An invoice or a bill is a commercial document issued by a seller to a buyer, relating to a sale transaction and indicating the products quantities and agreed prices for products or services the sellers had provided the buyer.

This implies that invoices are part of every business so no matter in which industry or business you are in you have to deal with invoices. This takes us to the next question of processing of the invoices. It basically involves the handling of incoming invoices from arrival to post.

A typical process involving paying a supplier invoice begins at the arrival of invoice at the door of the organization regardless of the methods of arrival such as via email, postal mail, facsimile, etc. Once the invoice arrives, the accounts payable clerk must ensure that the document is indeed an invoice. Then the clerk classifies and sorts the invoice into various categories. The definition of various categories is not always the same across different organizations but is normally defined by each organization.

Currently in case of my client the scenario is similar. They don't have any automated invoice generation system and hence they have to print the invoices and post them manually. This process is not only time consuming but also required more manpower and money.

The main objective of this dissertation is to identify a suitable automated system for the processing of invoices.

# **Chapter 2**

## **Analysis**

### **2.1 Current system**

Currently the invoices are printed for each customer and mail to them. This process is every time consuming as well as required lots of manpower and money to deliver invoices on time. In such system there is a very good chance of introducing error because things are done manually here.

### **2.2 Proposed system**

The proposed system name is EDI (Electronic Data Interchange). Basically it's an invoices processing and generation system, developed based on EDI standards.

EDI or Electronic Data Interchange is the computer-to-computer exchange of business documents in a standard electronic format between business partners.

By moving from a paper-based exchange of business document to one that is electronic, businesses enjoy major benefits such as reduced cost, increased processing speed, reduced errors and improved relationships with business partners.

- **Computer-to-computer**- EDI replaces postal mail, fax and email. While email is also an electronic approach, the documents exchanged via email must still be handled by people rather than computers. Having people involved slows down the processing of the documents and also introduces errors. Instead, EDI documents can flow straight through to the appropriate application on the receiver's computer (e.g., the Order Management System) and processing can begin immediately. A typical manual process looks like this, with lots of paper and people involvement:

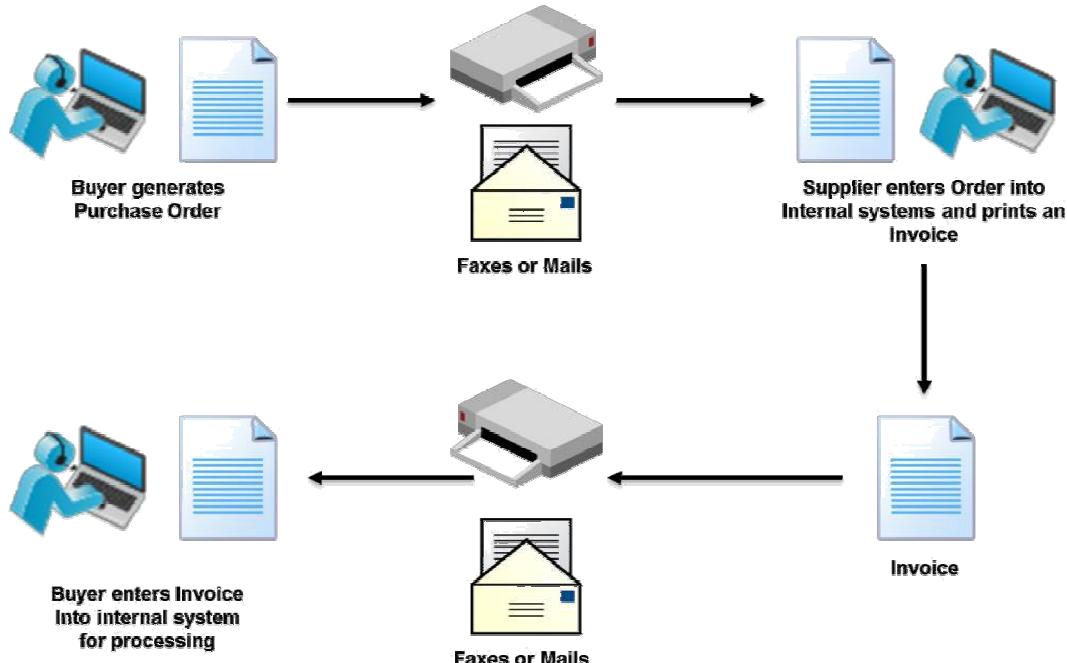


Figure 1

The EDI process looks like this — no paper, no people involved:

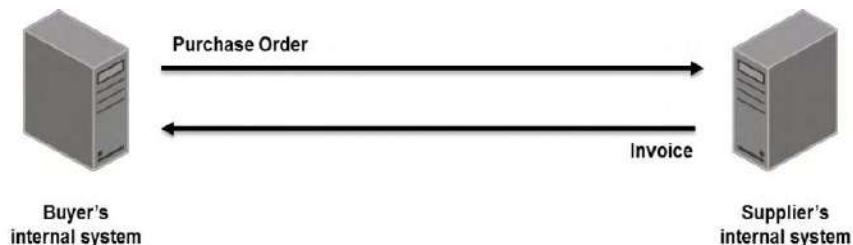


Figure 2

- **Business documents** – These are any of the documents that are typically exchanged between businesses. The most common documents exchanged via EDI are purchase orders, invoices and advance ship notices. But there are many, many others such as bill of lading, customs documents, inventory documents, shipping status documents and payment documents.
- **Standard format**– Because EDI documents must be processed by computers rather than humans, a standard format must be used so that the computer will be able to read and understand the documents. A standard format describes what each piece of information is and in what format (e.g., integer, decimal, mmddyy). Without a standard format, each company would send documents

using its company-specific format and, much as an English-speaking person probably doesn't understand Japanese, the receiver's

Computer system doesn't understand the company-specific format of the sender's format.

- o There are several EDI standards in use today, including ANSI, EDIFACT, TRADACOMS and ebXML. And, for each standard there are many different versions, e.g., ANSI 5010 or EDIFACT version D12, Release A. When two businesses decide to exchange EDI documents, they must agree on the specific EDI standard and version.
  - o Businesses typically use an EDI translator – either as in-house software or via an EDI service provider – to translate the EDI format so the data can be used by their internal applications and thus enable straight through processing of documents.
- **Business partners** – The exchange of EDI documents is typically between two different companies, referred to as business partners or trading partners. For example, Company A may buy goods from Company B. Company A sends orders to Company B. Company A and Company B are business partners.

In the implemented system the invoices will be segregated into five categories –

1. Fuel
2. Lease
3. Maintenance
4. BodyShop
5. Special

# Chapter 3

## Ecosystem

The complete EDICBOS ecosystem (billing system) for my client shown below -

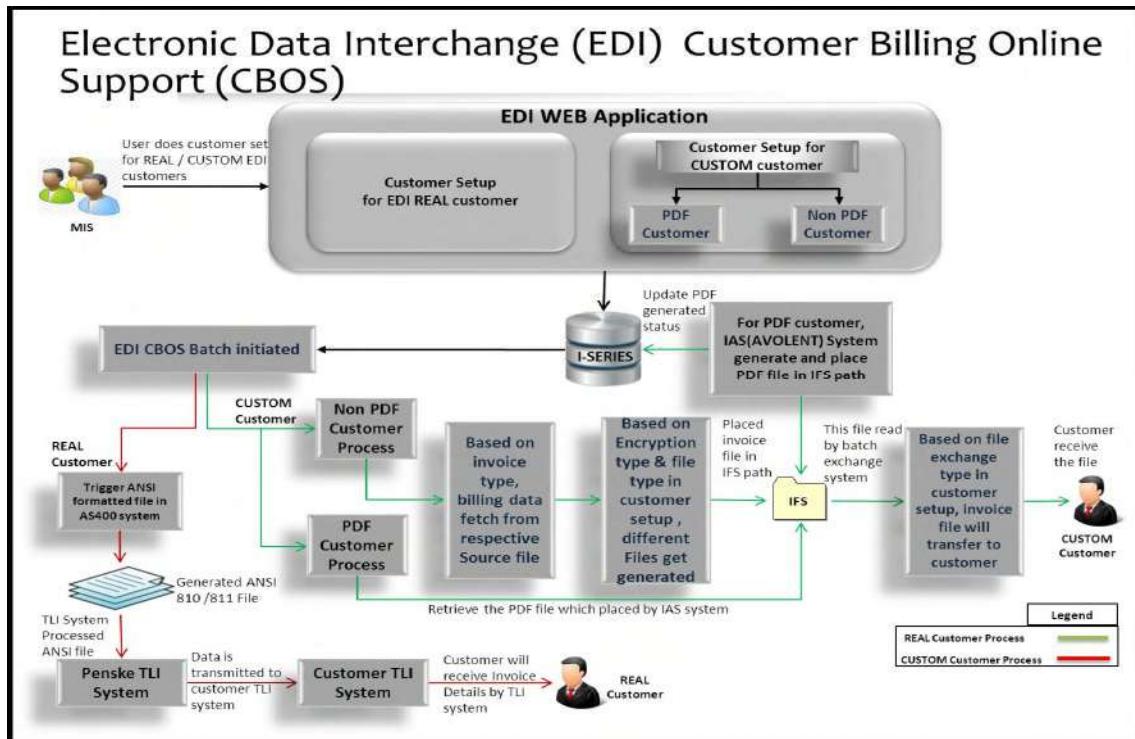


Figure 3

## **Environment Proposed**

Client recommends that our hardware should support three systems: - Development, QA and Production.

✓ **Development System**

Server Name: Server details given by client  
Instance: Database Instance name given by client  
Schema: Database Schema name given by client

✓ **QA System**

Server Name: Server details given by client  
Instance: Database Instance name given by client  
Schema: Database Schema name given by client

✓ **Production System**

Server Name: Server details given by client  
Instance: Database Instance name given by client  
Schema: Database Schema name given by client

# Chapter 4

## EDI Web Module

Edi Web Module is the web application part of EDI ecosystem. It is used for customer configuration and invoice tracking and creating/authorizing application users.

This application is developed using Struts as the main framework, other technologies such as HTML, CSS, JavaScript, Ajax are used in front-end. For database we have used IBM's DB2 as that the standard set by the client's IT team and iBatis for automating the mapping between java and sql.

The architecture of EDI web application is shown below -

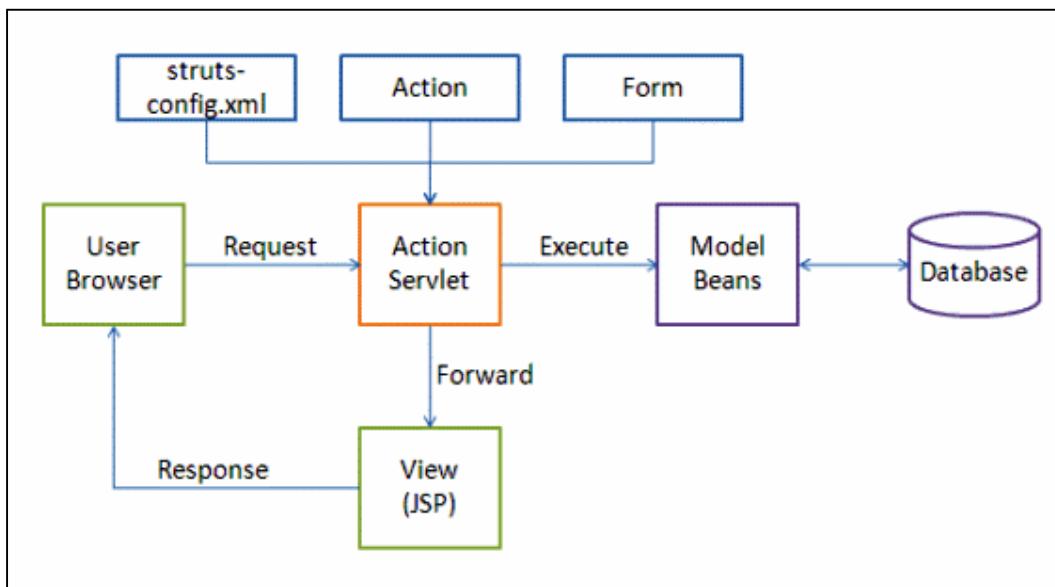


Figure 4

## EDI Web Application Screens-

### Home Page:

When you log-in to EDI the below page will appear. This will show the list of recently created customer setups that are under approval by MIS, BA and Operation team.

Customer Setup Requiring Additional Action											
MIS:											
Corp	Customer No.	Billing Group	District	Invoice Type	Name	Template Type	File Type	Encrypt Type	Exchange Type	Status	Comments
HPTL	601675	ALL	ALL	FI	CARDINAL HEALTH 200 LLC	SCF	TXT	NONE	SFTP	M	
HPTL	601675	ALL	ALL	FI	ANDATER INC	SCF	CSV	PZIP	EMAIL	M	Case # 14763765
HPTL	602223	ALL	ALL	FI	ANDATER INC	SCF	CSV	PZIP	EMAIL	M	Case # 14763765
HPTL	602228	ALL	ALL	FI	ANDATER INC	SCF	CSV	PZIP	EMAIL	M	Case # 14763765
HPTL	602228	ALL	ALL	MI	ANDATER INC	SCF	CSV	PZIP	EMAIL	M	Case # 14763765
HPTL	602225	ALL	ALL	SI	ANDATER INC	SCF	CSV	PZIP	EMAIL	M	Case # 14763765
Per meeting discussion on 09/22/10-EDI Training Partner info is pre-requisite to setting up EDI-4051. Sample file test09.17/2010											
HPTL	607392	ALL	ALL	FI	CARDONE INDUSTRIES INC	EDI	XLS		EMAIL	M	
HPTL	612971	ALL	ALL	FI	HD SUPPLY WATERWORKS LTD 270	SCF	CSV	PZIP	FTP	M	
HPTL	612971	ALL	ALL	LT	HD SUPPLY WATERWORKS LTD 270	SCF	CSV	PZIP	FTP	M	
HPTL	612971	ALL	ALL	MI	HD SUPPLY WATERWORKS LTD 270	SCF	CSV	PZIP	FTP	M	
HPTL	612971	ALL	ALL	SI	HD SUPPLY WATERWORKS LTD 270	SCF	CSV	PZIP	FTP	M	
FBA Report (#=32320_BULLLE F TRAILER) translation to CDRS. Updated to los file per FBA instructions.											
HPTL	613060	ALL	ALL	MI	EF TRANSIT INC/OTR N/C	LCF	XLS	NONE	EMAIL	M	
HPTL	631393	ALL	ALL	FI	KRAFT FOODS GLOBAL INC	LCF	XLS	NONE	EMAIL	M	Transition customized trial report from FBA
HPTL	640624	ALL	ALL	FI	NEW BEAR TRANSPORT CORP	SCF	XLS	PZIP	EMAIL	M	Case # 12323118
HPTL	650924	ALL	ALL	MI	SHAW INDUSTRIAL INC/HDC	SCF	XLS	PZIP	EMAIL	M	Case # 14023030
HPTL	651439	DL	0432	SI	UDS-TL-NAPL 24W	SCF	XLS	NONE	EMAIL	M	SC 11380492
HPTL	651527	ALL	ALL	FI	WHITE CAP CONSTRUCTION 030	SCF	CSV	PZIP	FTP	M	
HPTL	651527	ALL	ALL	LT	WHITE CAP CONSTRUCTION 030	SCF	CSV	PZIP	FTP	M	
HPTL	651527	ALL	ALL	MI	WHITE CAP CONSTRUCTION 030	SCF	CSV	PZIP	FTP	M	
HPTL	651527	ALL	ALL	SI	WHITE CAP CONSTRUCTION 030	SCF	CSV	PZIP	FTP	M	
HPTL	672002	ALL	ALL	MI	YOUNG'S MARKET COMPANY LLC	SCF	PDF	NONE	EMAIL	M	special handling conversion
Operations:											
Corp	Customer No.	Billing Group	District	Invoice Type	Name	Template Type	File Type	Encrypt Type	Exchange Type	Status	Comments
HPTL	601675	ALL	ALL	FI	CARDINAL HEALTH 200 LLC	LCF	TXT		SFTP	O	
HPTL	601675	ALL	ALL	LT	CARDINAL HEALTH 200 LLC	LCF	TXT		SFTP	O	
HPTL	601675	ALL	ALL	MI	CARDINAL HEALTH 200 LLC	SCF	TXT	NONE	SFTP	O	
HPTL	601675	ALL	ALL	SI	CARDINAL HEALTH 200 LLC	LCF	TXT		SFTP	O	test
HPTL	613544	ALL	ALL	FI	RALPH MOORE INC	LCF	CSV	PZIP	FTP	O	test
HPTL	613544	ALL	ALL	LT	RALPH MOORE INC	LCF	CSV	PZIP	FTP	O	test

Figure 5

## Add New Customer Page:

This page will allow the user to create new customer setups into EDI system. We can navigate to here from Customer Setup tab.

In order to create a new setup you have to give the customer number for that customer and fill other details correctly later click “Save & Exit” or “Save & Continue”.

The screenshot shows the 'Non EDI Customer Detail' form within the EDI Customization QA application. The top navigation bar includes links for Home, Customer Setup, Customer Search, Data Templates, Invoice Inquiry, Reference, and Admin. A message at the top right indicates the user is logged in as Arthisja Sethuraman. The main form area is titled 'Non EDI Customer Detail' and contains several sections:

- Non EDI Information:** Fields include Company Code (HTML), Customer No., Bill Group, District, Customer Name, Invoice Type, and various checkboxes for file exchange settings like File Encrypt, PKZIP, Individual Image, and File Exchange Frequency (As needed).
- Email Information:** Sections for Email To, CC, and BCC, along with Panska Contacts.
- Contact Information:** Fields for Customer IT, Customer Business, and PTL Contact.
- Linked Customers:** A table with columns for Corp Code, Customer#, Bill Group, Dist, Cust Name, and Include.
- Comments:** A large text area for comments.
- Record History:** Fields for Environment, Entered By, Record Status, and Changed By.

At the bottom of the form are three buttons: Save & Exit, Save & Continue, and Cancel.

Figure 6

## Customer Search Page:

This page will let the user search existing setups, edit them copy them or delete them.

Select	Copy	Edit	Corp	Customer No.	Bill group	District	Invoice Type	Customer Name	Template Type	File Freq	File Type	ANSI Set	Encrypt	Status	EDI Customer
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	04	7837	FI	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	03	7837	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	02	7837	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	01	7837	ML	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	01	7837	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	00	7837	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	04	7832	FI	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	03	7832	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	02	7832	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	01	7832	ML	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	01	7832	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	00	7832	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	04	7830	FI	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	03	7830	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	02	7830	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	01	7830	ML	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	01	7830	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	00	7830	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	04	7777	FI	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI
<input type="checkbox"/>	<a href="#">Copy</a>	<a href="#">Edit</a>	HPTL	661073	03	7777	LT	US FOODS INC AKRON	CXML	A	XML		NONE	A	Non-EDI

[First] [Prev] [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [Next] [Last]

[Delete](#)

Figure 7

## Invoice Inquiry Page:

As the name suggests this page will let you keep track of invoices generated in the near past, from here you can check details of invoice file and even resend it back to the customer again.

Select	Customer#	Bill Group	District	Invoice Type	Exchange Type	File Name	Encrypt	Sent Date/Time	Sent By
<input type="checkbox"/>	661073	04	7837	FI	POST	C0661073-04-7837-2017060790012-005.XML	NONE	2017-06-07 09:09:26.444	SYS
<input type="checkbox"/>	661073	01	7837	M	POST	C0661073-01-7837-2017060790751-003.XML	NONE	2017-06-07 09:08:20.147	SYS
<input type="checkbox"/>	661073	02	7837	L	POST	C0661073-02-7837-2017060790751-003.XML	NONE	2017-06-07 09:08:18.886	SYS
<input type="checkbox"/>	661073	01	7837	L	POST	C0661073-01-7837-2017060790745-003.XML	NONE	2017-06-07 09:08:12.056	SYS
<input type="checkbox"/>	661073	04	7832	FI	POST	C0661073-04-7832-2017060790736-003.XML	NONE	2017-06-07 09:07:51.577	SYS
<input type="checkbox"/>	661073	02	7832	L	POST	C0661073-02-7832-2017060790724-003.XML	NONE	2017-06-07 09:07:30.875	SYS
<input type="checkbox"/>	661073	01	7832	M	POST	C0661073-01-7832-2017060790715-003.XML	NONE	2017-06-07 09:07:45.766	SYS
<input type="checkbox"/>	661073	01	7832	L	POST	C0661073-01-7832-2017060790709-003.XML	NONE	2017-06-07 09:07:36.207	SYS
<input type="checkbox"/>	661073	04	7830	FI	POST	C0661073-04-7830-2017060790709-003.XML	NONE	2017-06-07 09:07:24.322	SYS
<input type="checkbox"/>	661073	01	7830	M	POST	C0661073-01-7830-2017060790643-003.XML	NONE	2017-06-07 09:07:15.646	SYS
<input type="checkbox"/>	661073	02	7830	L	POST	C0661073-02-7830-2017060790644-003.XML	NONE	2017-06-07 09:07:09.805	SYS
<input type="checkbox"/>	661073	01	7830	L	POST	C0661073-01-7830-2017060790639-003.XML	NONE	2017-06-07 09:07:09.28	SYS
<input type="checkbox"/>	661073	02	7777	L	POST	C0661073-02-7777-2017060790616-003.XML	NONE	2017-06-07 09:06:44.003	SYS
<input type="checkbox"/>	661073	01	7777	M	POST	C0661073-01-7777-2017060790629-003.XML	NONE	2017-06-07 09:06:43.468	SYS
<input type="checkbox"/>	661073	04	7777	FI	POST	C0661073-04-7777-2017060790622-003.XML	NONE	2017-06-07 09:06:39.045	SYS
<input type="checkbox"/>	661073	01	7777	L	POST	C0661073-01-7777-2017060790551-003.XML	NONE	2017-06-07 09:06:22.327	SYS
<input type="checkbox"/>	661073	01	7405	M	POST	C0661073-01-7405-2017060790545-003.XML	NONE	2017-06-07 09:06:15.473	SYS
<input type="checkbox"/>	661073	01	7405	L	POST	C0661073-01-7405-2017060790541-003.XML	NONE	2017-06-07 09:06:09.627	SYS
<input type="checkbox"/>	661073	02	7190	L	POST	C0661073-02-7190-2017060790323-003.XML	NONE	2017-06-07 09:05:31.061	SYS
<input type="checkbox"/>	661073	01	7190	M	POST	C0661073-01-7190-2017060790518-003.XML	NONE	2017-06-07 09:05:45.773	SYS

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Figure 8

## Function Group Page:

This page will allow the user to add security functions to the Security Group like giving security access of accessing the customer setup page to MIS user.

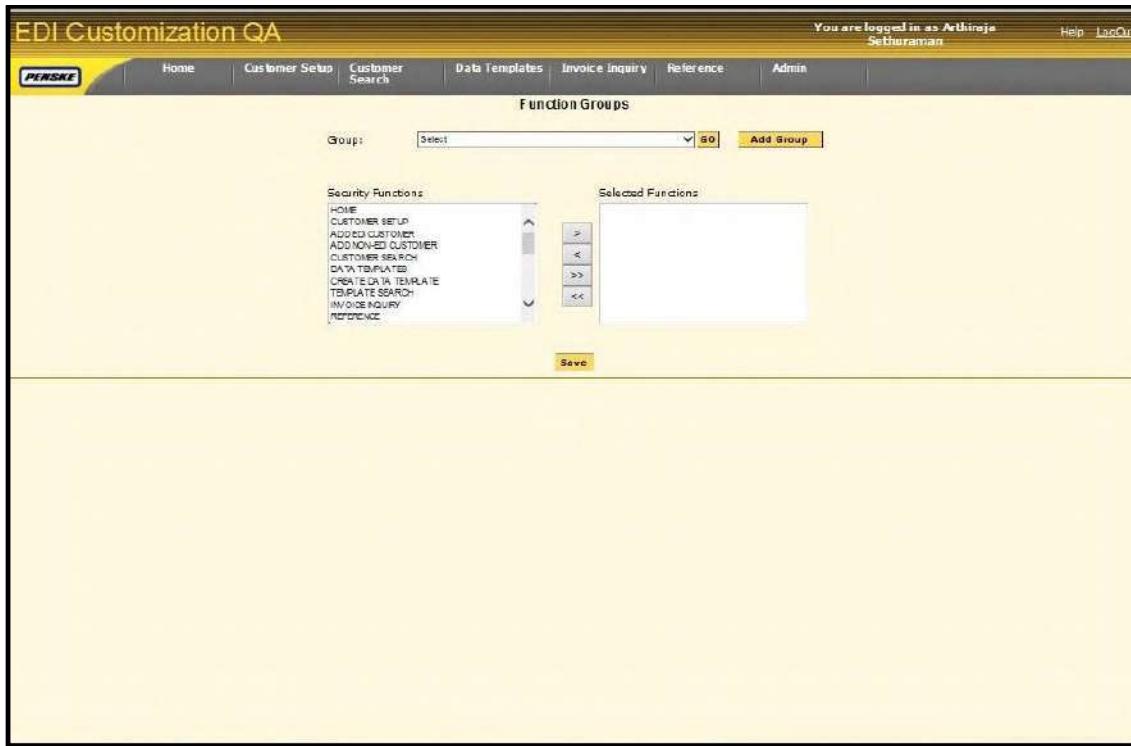


Figure 9

## User Authority Page:

This page will allow the user to give Group access to new users in EDI application. For e.g. – a new employee joined in the Billing team then existing admin of EDI will give him concerned authorities as a BA using his SSO Id.

The screenshot shows the 'User Authority' page of the EDI Customization QA system. At the top, there's a navigation bar with links for Home, Customer Setup, Customer Search, Data Templates, Invoice Inquiry, Reference, and Admin. The Admin link is currently selected. A message at the top right says 'You are logged in as Arthiinja Sethuraman'. On the left, there are input fields for 'SSO Id', 'User Name', and 'Title'. Below these is a dropdown menu labeled 'Group' set to 'Admin', and another dropdown labeled 'Functions'. A scrollable list of functions is displayed in a dropdown menu, including: HOME, CUSTOMER SETUP, ADD EDI CUSTOMER, ADD NEW CUSTOMER, CUSTOMER SEARCH, DATA TEMPLATES, CREATE DATA TEMPLATE, TEMPLATE SEARCH, INVOICE INQUIRY, and REFERENCE. At the bottom right of the page is a yellow 'Save' button.

Figure 10

## **Chapter 5**

### **Edi Batch Module**

EDI Batch is a project based on JavaSE and iBatis. This application is responsible for generation and delivery of invoices.

Every day this batch job will get triggered using a CRON based shell script and it will generate the invoice and deliver it to the customer. To define the flow of Edi Batch in a nutshell. It has to be like the job will get invoke at a certain time. It will look for what all customers are eligible to get processed today (based on the exchange frequencies). It will take this list and insert into EDI\_PROCESS\_STATUS table for further processing. Then it will pick the customer one by one from the same list and execute its billing if some records are returned by this query then it will write the same into the a file(file extension will be based upon user configuration). And in the end it will either Email or FTP it to the respective customer.

The complete flow chart of Batch job for both Pdf invoice generation flow and non Pdf invoice generation flow is shown here -

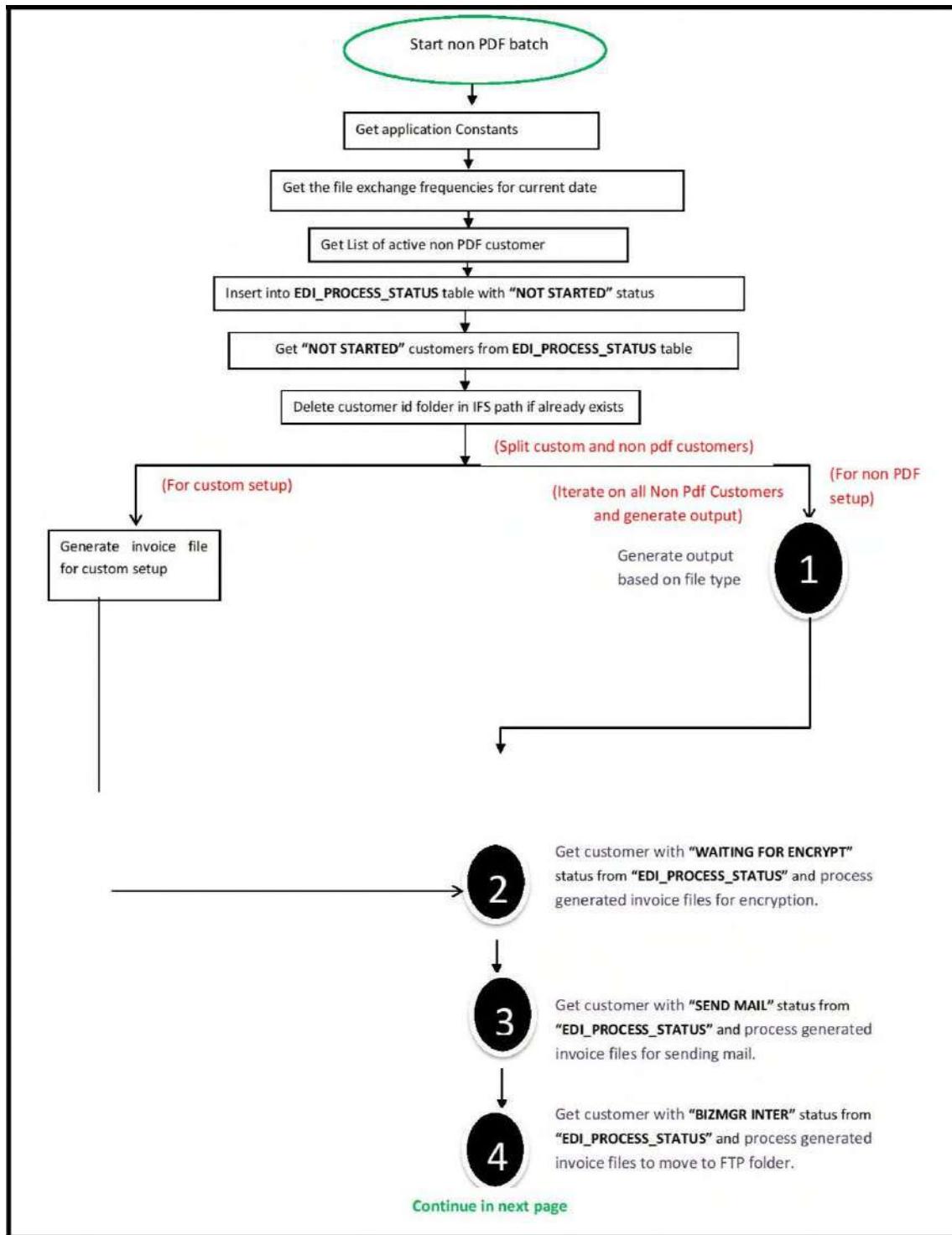


Figure 11

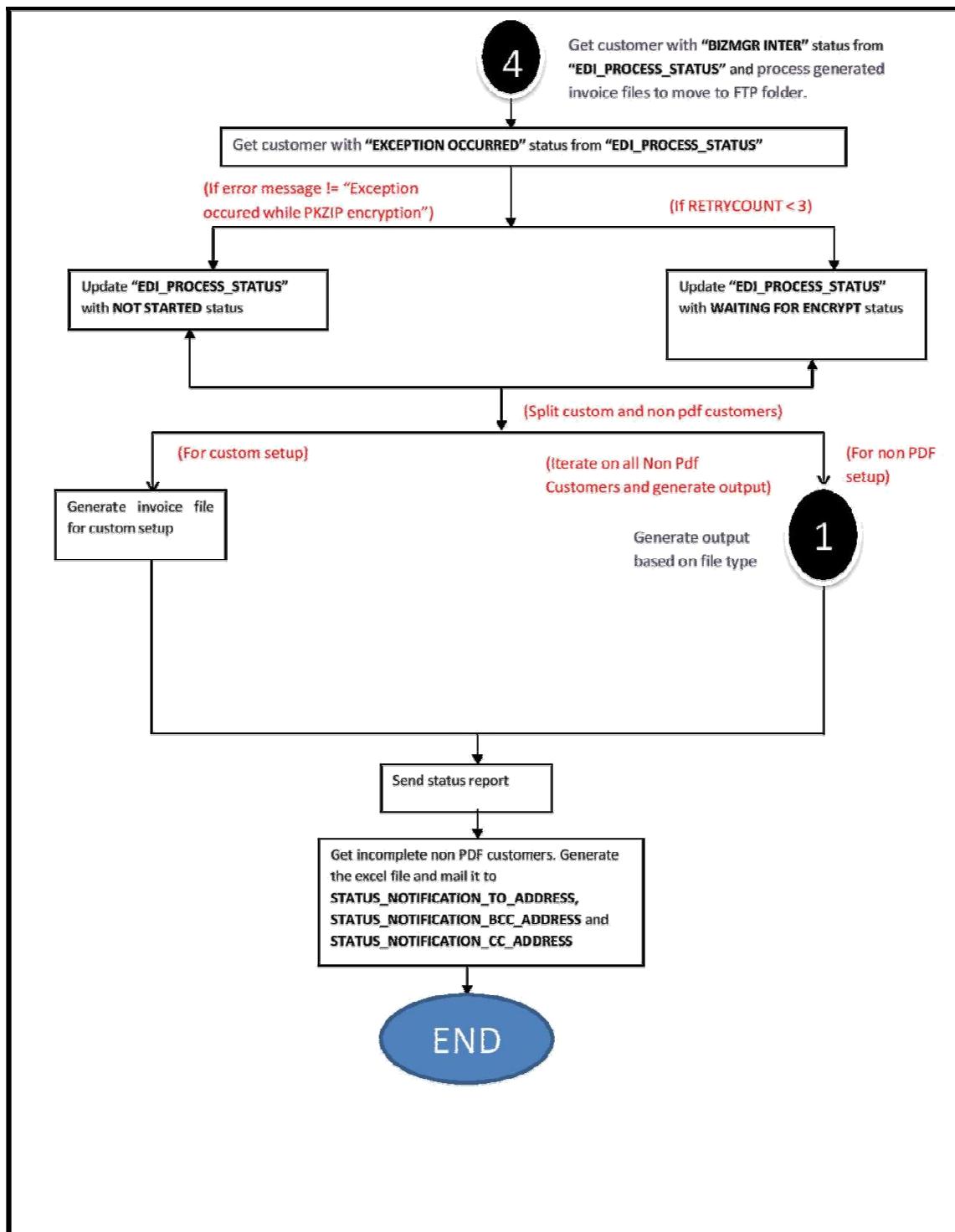


Figure 12

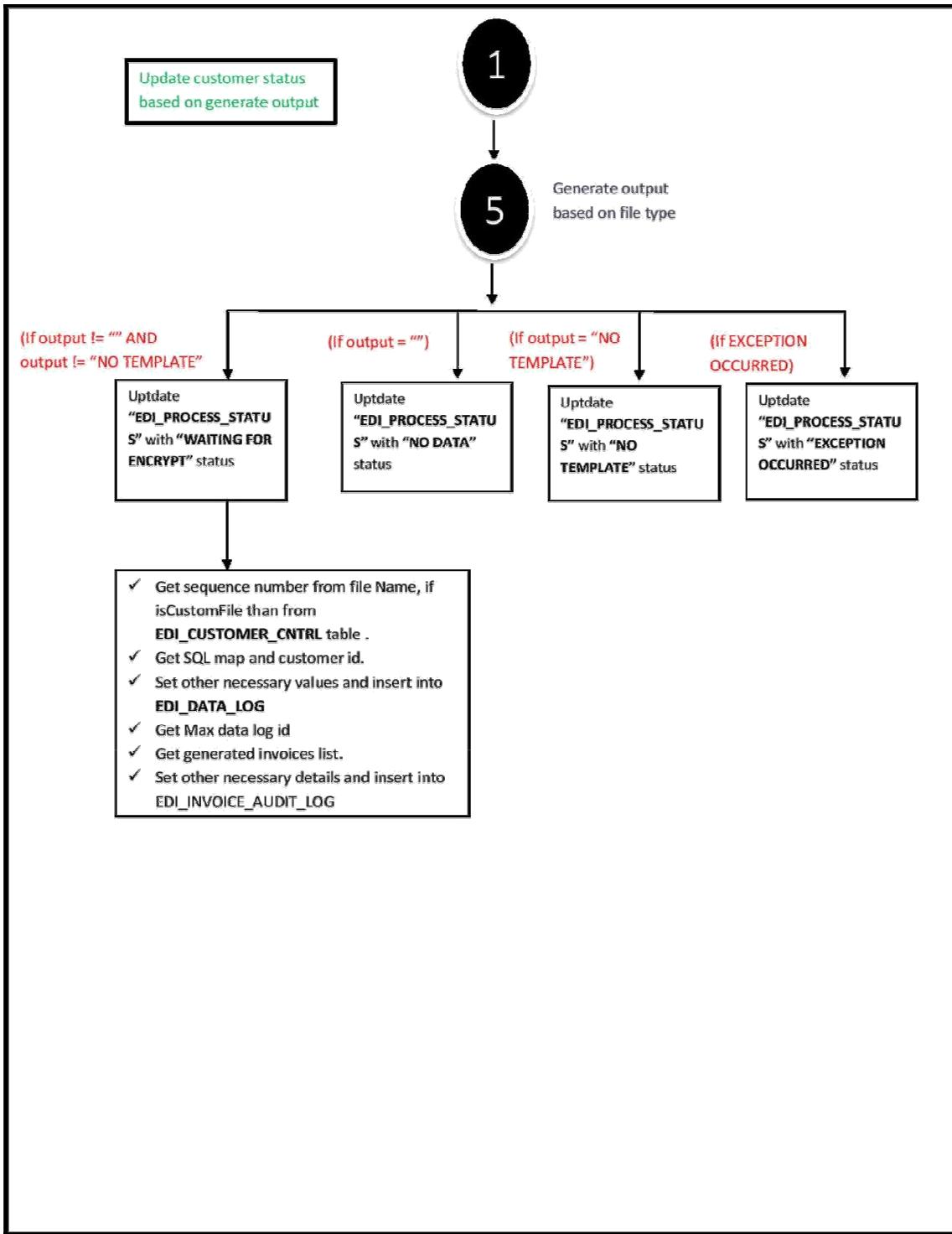


Figure 13

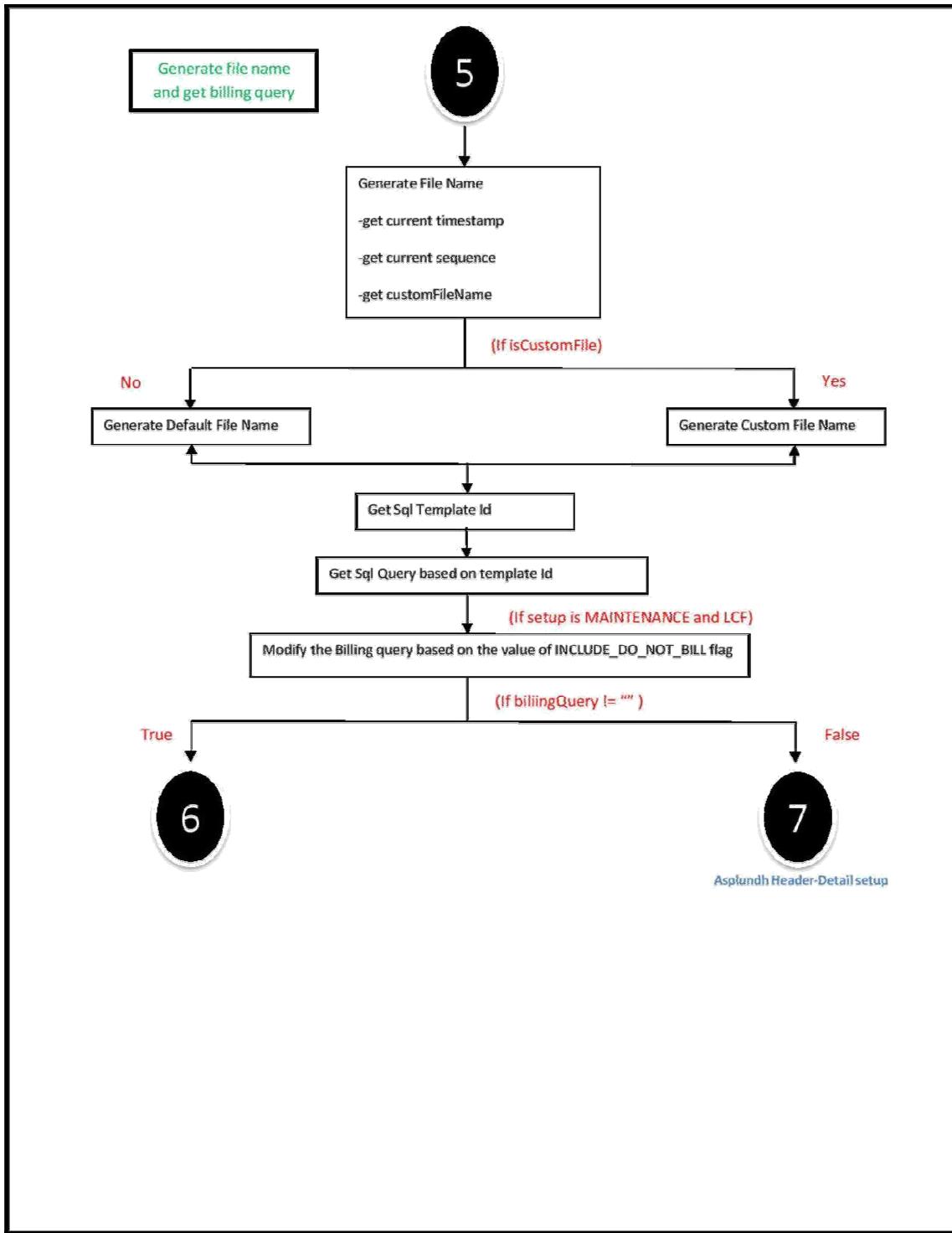


Figure 14

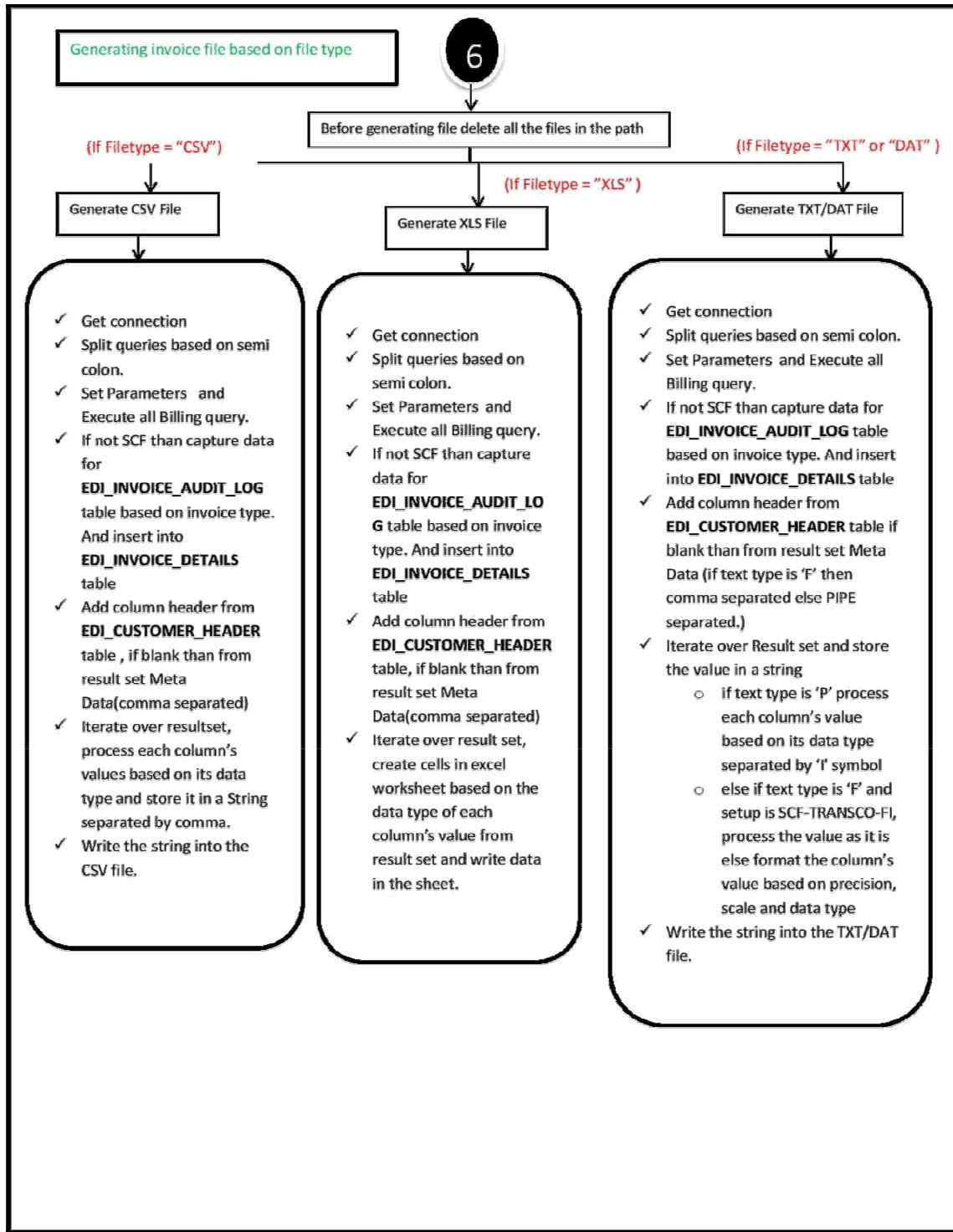


Figure 15

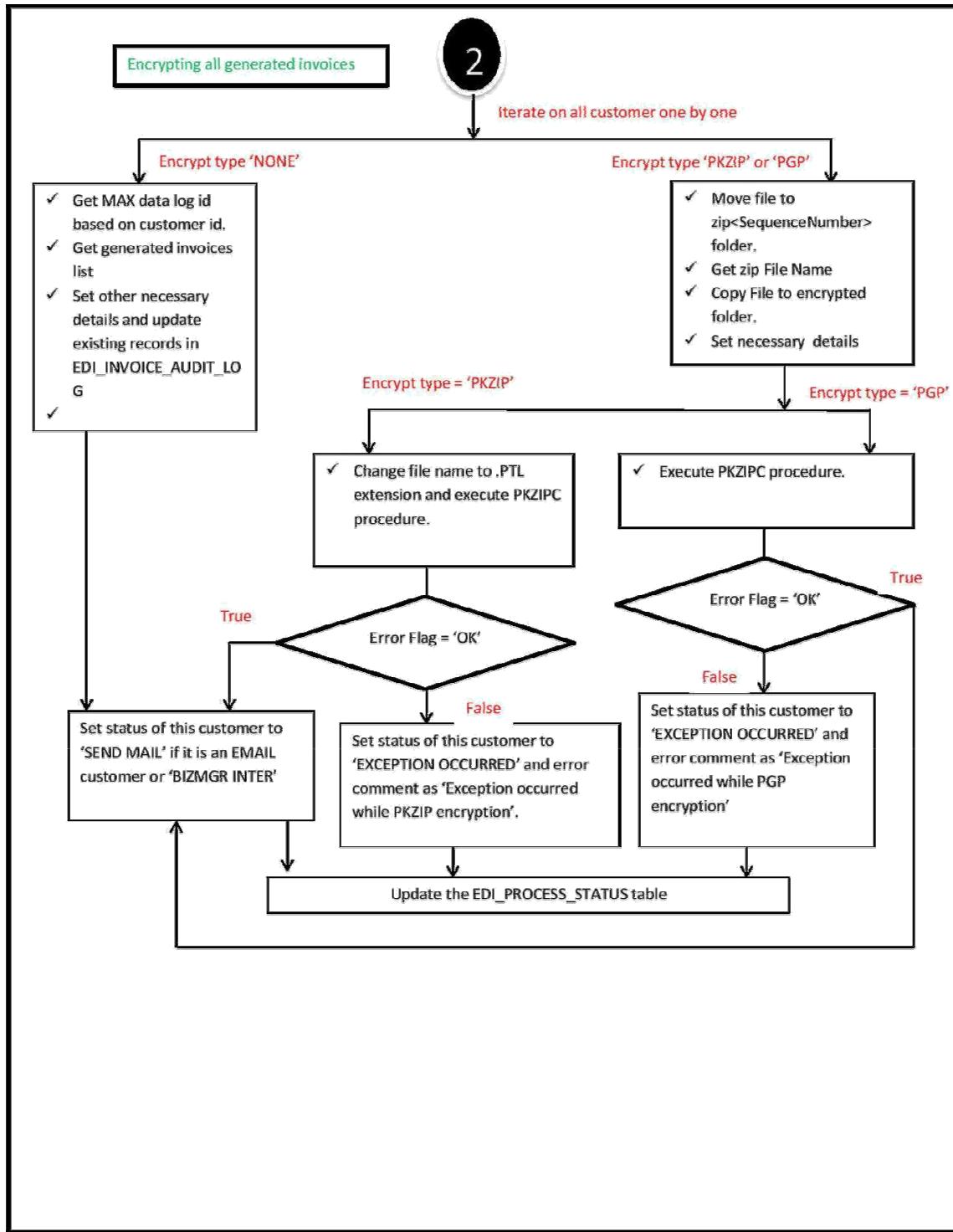


Figure 16

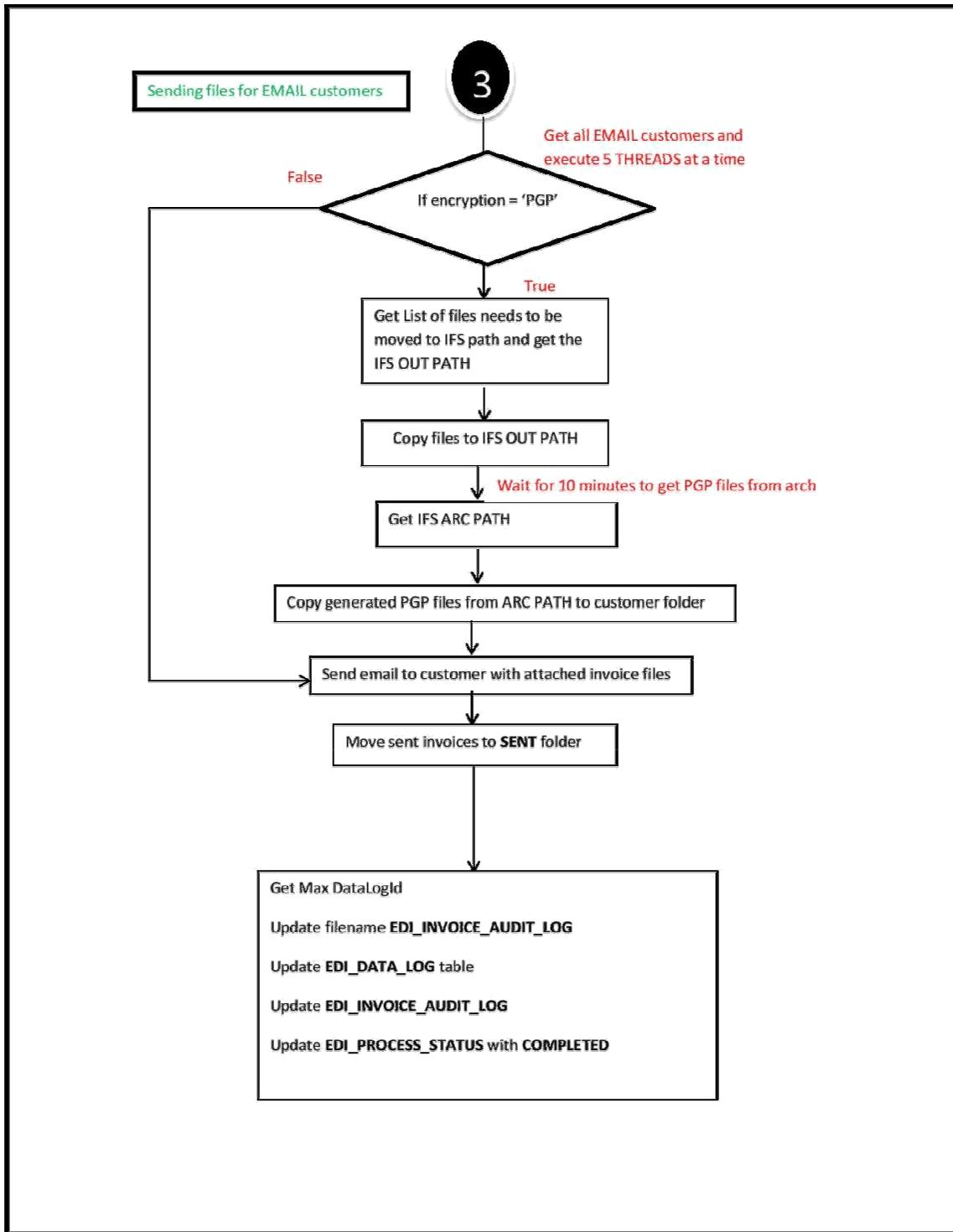


Figure 17

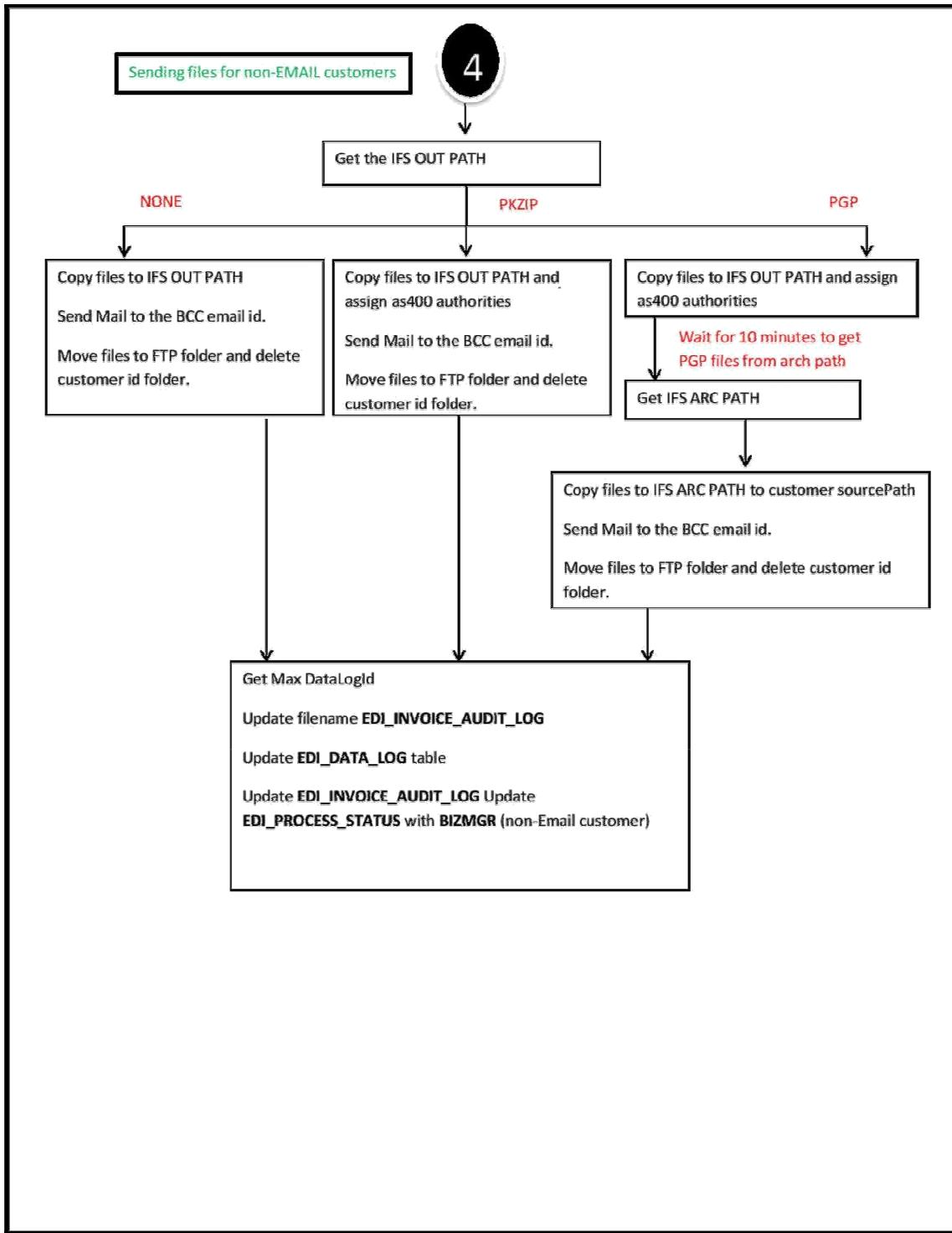


Figure 18

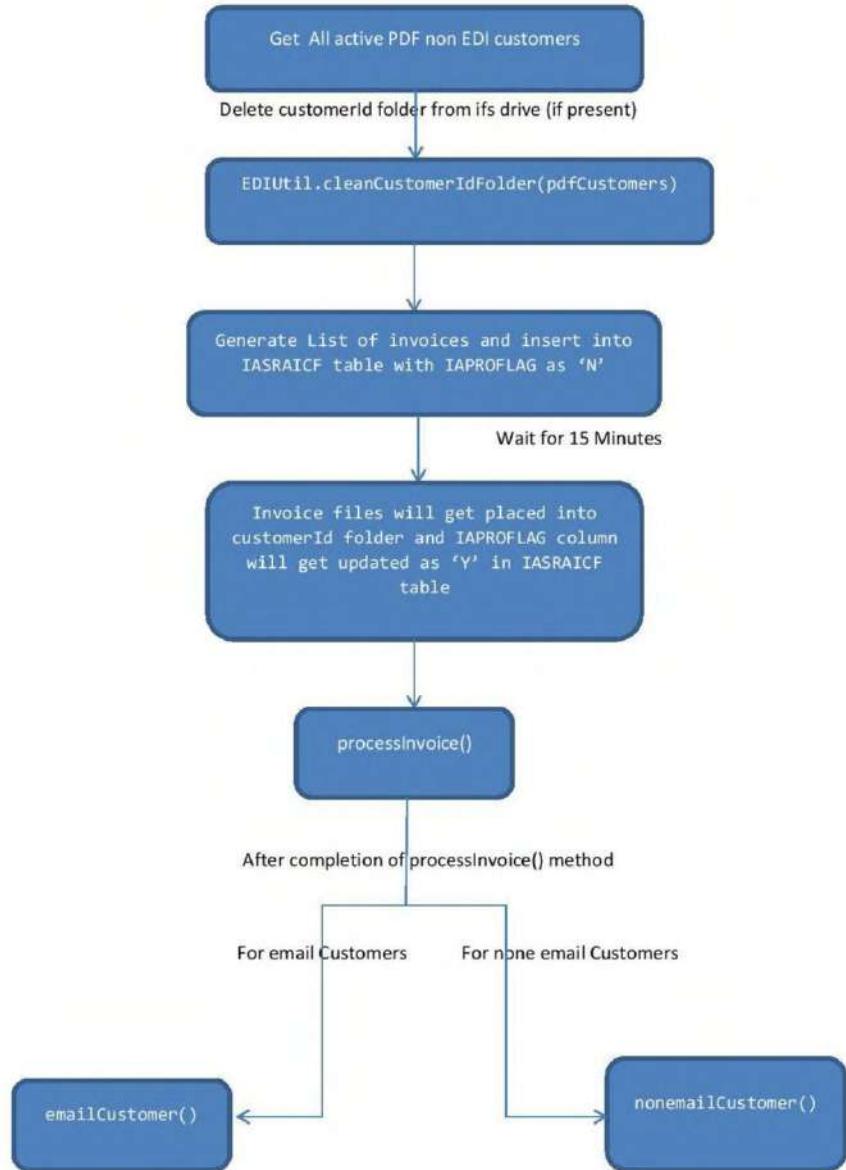


Figure 19

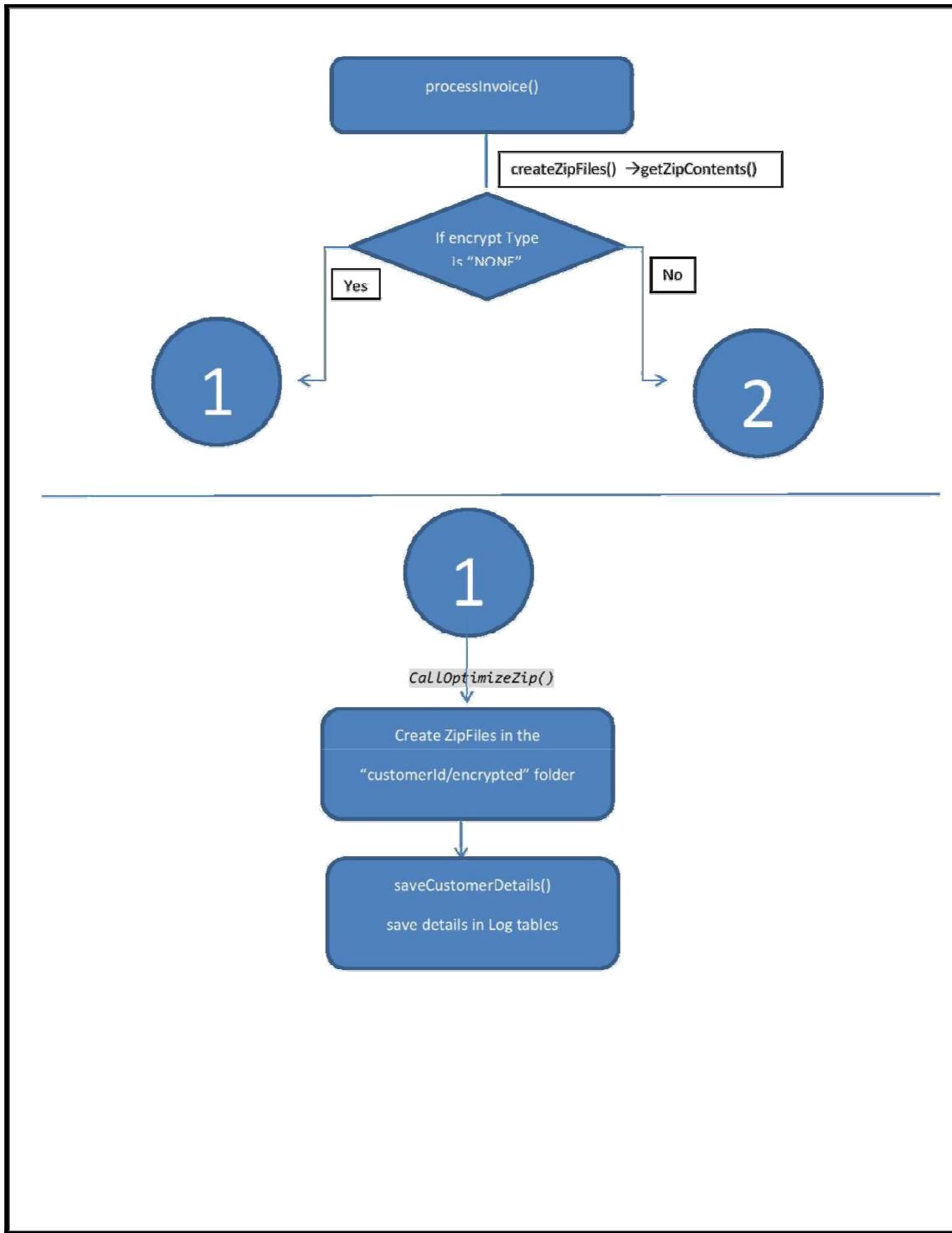


Figure 20

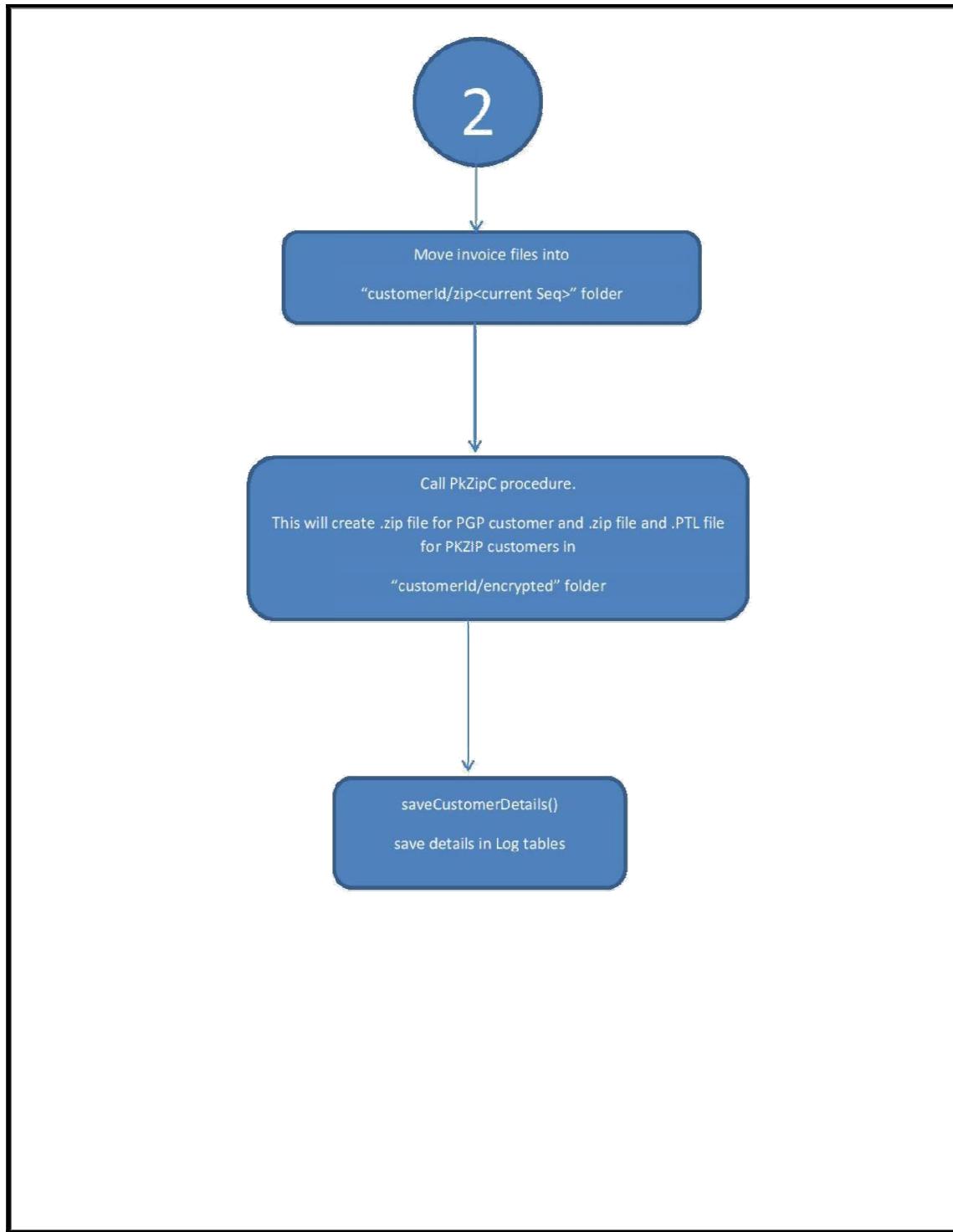


Figure 21

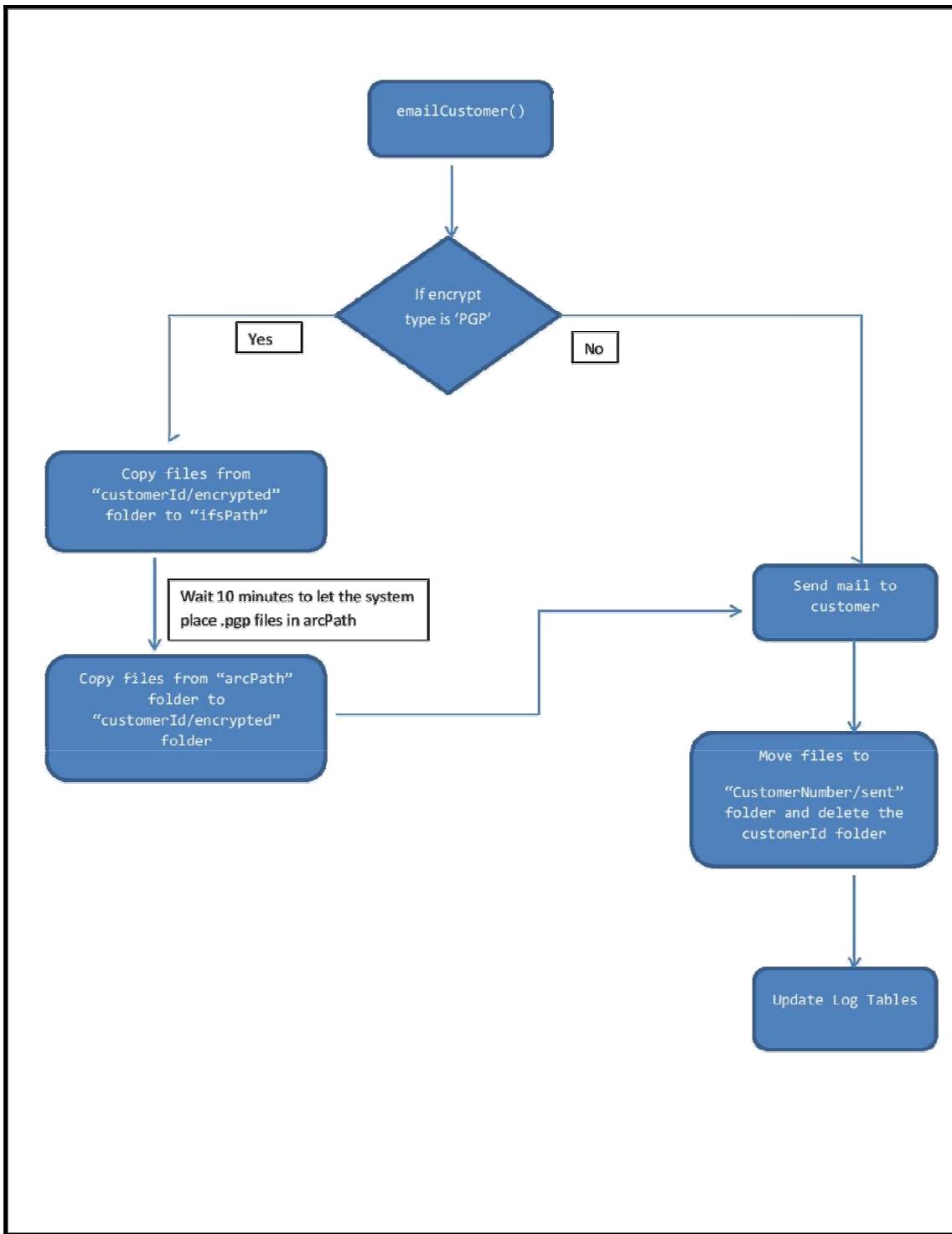


Figure 22

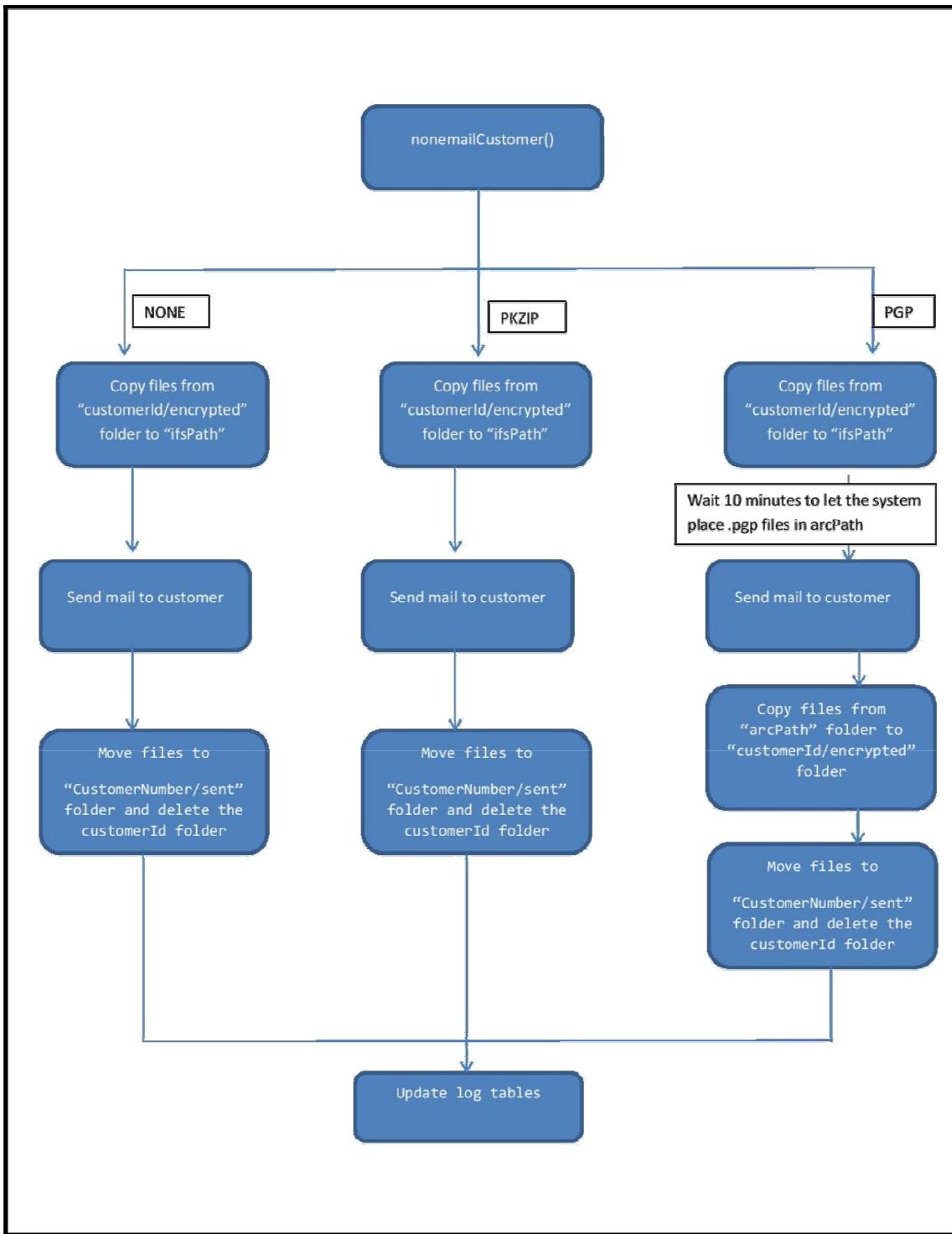


Figure 23

# Chapter 6

## Database Details

This chapter will introduce us from the table used in the EDI application (web and batch combined).

- **EDI\_FUEL**

Table for storing Fuel invoice data.

Table 1

Index	Column Name	Data Type	Size
1	RECORD_ID	BIGINT	19
2	FUEL_TICKET	CHAR	9
3	PUMPING_DISTRICT	CHAR	4
4	PUMPING_LOCATION	CHAR	2
5	PUMPING_DATE	DATE	10
6	GALLONS_PUMPED	DECIMAL	5
7	FUEL_TYPE	CHAR	1
8	FUEL_USE	CHAR	1
9	SERVICE_LEVEL	CHAR	1
10	OIL_QUANTITY	DECIMAL	4
11	OIL_USE	CHAR	1
12	CUSTOMER_NUMBER	VARCHAR	128
13	SAlestax_FLAG	CHAR	1
14	FUEL_COST_CODE	CHAR	1
15	UNIT_NUMBER	VARCHAR	64
16	VEHICLE_TYPE	CHAR	1
17	ODOMETER_READING	DECIMAL	28
18	PRICE_PER_GALLON	DECIMAL	7
19	EXTENDED_PRICE_PER_GALLON	DECIMAL	28
20	OIL_COST_PER_QUART	DECIMAL	7
21	EXCISE_REFUND_PER_GALLON	DECIMAL	7
22	SALES_TAXABLE_AMT	DECIMAL	28
23	SALES_TAX_AMT	DECIMAL	28
24	INVOICE_AMT	DECIMAL	28
25	VENDOR_NAME	CHAR	24
26	VENDOR_CITY	CHAR	15
27	VENDOR_STATE	CHAR	2
28	CUST_DIST	VARCHAR	64
29	BILL_CYCLE	CHAR	2
30	INVOICE_NUMBER	VARCHAR	100
31	INVOICE_DATE	DATE	10
32	CUST_PRIME	VARCHAR	64
33	BILL_GRP	VARCHAR	64
34	FUEL_SOURCE	CHAR	1
35	TRANSCATION_FEE	DECIMAL	7

36	OIL_SALES_TAXAMT	DECIMAL	28
37	DISTRICT_NAME	VARCHAR	36
38	BILL_TO_COMPANY_NAME	VARCHAR	100
39	VENDOR_NUMBER	CHAR	6
40	OPTIONAL_RA_NUMBER	CHAR	10
41	CARD_NUMBER_1	VARCHAR	18
42	CARD_NUMBER_2	VARCHAR	6
43	STATEMENT_NUMBER	VARCHAR	100
44	TAX_NAME_ABBREVIATION	VARCHAR	3
45	STATE_TAX_RATE	DECIMAL	28
46	COUNTRY_TAX_RATE	DECIMAL	28
47	OTHER_TOTAL	DECIMAL	28
48	PAYMENT_DUE_DATE	DATE	10
49	PERIOD_ENDING	DATE	10
50	CUST_Corp	CHAR	4
51	ALREADY_INCLUDED	CHAR	1
52	CITY_TAX_RATE	DECIMAL	28
53	STATE_TAX_CHARGE	DECIMAL	28
54	COUNTY_TAX_CHARGE	DECIMAL	28
55	CITY_TAX_CHARGE	DECIMAL	28
56	STATE_ABBREVIATION	CHAR	2
57	VEHICLE_USE	VARCHAR	255
58	FUEL_CHARGE	DECIMAL	28
59	FUEL_GALLONS	DECIMAL	28
60	SALES_TAX	DECIMAL	28
61	TICKET_START_TIME	DECIMAL	28
62	BILL_TO_ADDRESS_1	VARCHAR	100
63	BILL_TO_ADDRESS_2	VARCHAR	80
64	BILL_TO_CITY	VARCHAR	32
65	BILL_TO_STATE	VARCHAR	5
66	BILL_TO_ZIP	VARCHAR	11
67	BILL_TO_ATTENTION	VARCHAR	100
68	BILL_DIST	VARCHAR	64
69	BILL_LOC	CHAR	2
70	SERVICE_LOC_PHONE	VARCHAR	255
71	DATA_LOAD_DATE	TIMESTAMP	26
72	CUSTOMER_UNIT_NUMBER	CHAR	8
73	VIN	CHAR	20
74	VENDOR_ZIP	CHAR	9
75	MICRO_CONTROL_NUMBER	CHAR	6
76	DO_PTL_INTER_CO	CHAR	1
77	TRANSXNTYPE	DECIMAL	28
78	SUBTYPE	VARCHAR	3
79	CUSTOMDATA4	VARCHAR	255
80	VENDORTYPE	CHAR	1
81	VEHMODEL	VARCHAR	8
82	FUEL_COST_PER_GALLON	DECIMAL	7
83	PEG_PER_GALLON	DECIMAL	7
84	OTHER_FUEL_CODE	CHAR	3
85	FUEL_TYPE_DER	CHAR	25

86	REBATE_AMOUNT	DECIMAL	7
87	RETAINED_AMOUNT	DECIMAL	7
88	ACCOUNT_CODE	CHAR	5
89	ACCOUNT_CODE_DESC	CHAR	15
90	AREA_NUMBER	CHAR	4
91	REGION_NUMBER	CHAR	4
92	GROSS_VEHICLE_WEIGHT	DECIMAL	7
93	VEHICLE_LICENSE_NUMBER	CHAR	10
94	FOREIGN_UNIT	CHAR	1
95	EXTENDED_LINE_AMOUNT_CHARGES	DECIMAL	9
96	VEHICLE_CATEGORY	CHAR	8
97	VEHICLE_MANUFACTURER	CHAR	12
98	VEHICLE_MODEL	CHAR	8
99	VEHICLE_MODEL_YEAR	DECIMAL	3
100	FUEL_TICKET_STATUS	CHAR	1
101	USED_FUEL_STS	CHAR	1
102	FUEL_CARD_USE	CHAR	1
103	TICKET_END_TIME	DECIMAL	7
104	OIL_COST_TOTAL	DECIMAL	11
105	VEHICLE_DESCRIPTION	CHAR	24
106	EXCISE_REFUND_AMT	NUMERIC	7
107	FEDERAL_EXCISE_TAX_AMT	NUMERIC	7
108	SUPP_FUEL_ID	NUMERIC	38

- **EDILEASE**

Table for storing Lease invoices data.

**Table 2**

Index	Column Name	Data Type	Size
1	RECORD_ID	BIGINT	19
2	BILLING_DISTRICT	CHAR	4
3	CUSTOMER_NUMBER	VARCHAR	128
4	MERGE_GROUP_CODE	DECIMAL	28
5	HUB_NUMBER	DECIMAL	28
6	BILLING_DATE	DATE	10
7	BILL_IN_ADVANCE	CHAR	1
8	UNIT_NUMBER	VARCHAR	64
9	ALTERNATE_UNIT_NUMBER	CHAR	10
10	UNIT_CLASS	CHAR	1
11	UNIT_USAGE	CHAR	1
12	NUMBER_OF_MONTHS_TO_CHARGE	DECIMAL	28
13	NUMBER_OF_WEEKS_TO_CHARGE	DECIMAL	28
14	NUMBER_OF_DAYS_TO_CHARGE	DECIMAL	28
15	STARTING_MILEAGE	DECIMAL	28
16	ENDING_MILEAGE	DECIMAL	28
17	TOTAL_USAGE	DECIMAL	28
18	REVENUE_MILEAGE_RATE_1	DECIMAL	28
19	MILEAGE_RATE_1	DECIMAL	28
20	MILEAGE_RATE_1_CHARGE	DECIMAL	28

21	FIXED_CHARGE	DECIMAL	28
22	EXTRA_ADJUSTMENT_CHARGE	DECIMAL	28
23	SALES_TAX_1	DECIMAL	28
24	TOTAL_CHARGE_1	DECIMAL	28
25	REVENUE_MILEAGE_RATE_2	DECIMAL	28
26	MILEAGE_RATE_2	DECIMAL	28
27	MILEAGE_RATE_2_CHARGE	DECIMAL	28
28	SALES_TAX_2	DECIMAL	28
29	TOTAL_CHARGE_2	DECIMAL	28
30	REVENUE_MILEAGE_RATE_3	DECIMAL	28
31	MILEAGE_RATE_3	DECIMAL	28
32	MILEAGE_RATE_3_CHARGE	DECIMAL	28
33	SALES_TAX_3	DECIMAL	28
34	TOTAL_CHARGE_3	DECIMAL	28
35	CALCULATION_CODE	CHAR	1
36	MILEAGE_FREQUENCY	CHAR	1
37	MILEAGE_LIMIT_1	DECIMAL	28
38	ALLOW_GUAR_MILES_TO_DATE	DECIMAL	28
39	PENALTY_MILEAGE	DECIMAL	28
40	PENALTY_MILEAGE_RATE	DECIMAL	28
41	PENALTY_CHARGE	DECIMAL	28
42	PENALTY_TAX	DECIMAL	28
43	PENALTY_TOTAL	DECIMAL	28
44	STATE_TAX_CODE	DECIMAL	28
45	SALES_TAX_CODE	DECIMAL	28
46	EXTRA_STARTING_DATE	DATE	10
47	EXTRA_ENDING_DATE	DATE	10
48	PURCHASE_ORDER_NUMBER	CHAR	20
49	IN_SERVICE_FROM_DATE	DATE	10
50	IN_SERVICE_TO_DATE	DATE	10
51	OUT_OF_SERVICE_DATE	DATE	10
52	INVOICE_NUMBER	VARCHAR	100
53	CUSTOMER_PRIME	VARCHAR	64
54	CUSTOMER_BILL_GROUP	VARCHAR	64
55	INVOICE_DATE	DATE	10
56	CONS_STMT_NUMBER	VARCHAR	100
57	BILL_TO_CITY_NAME	VARCHAR	32
58	BILL_TO_STATE_NAME	VARCHAR	5
59	CUSTOMER_NAME	VARCHAR	100
60	DISTRICT_NAME	VARCHAR	36
61	BILL_TO_ADDRESS_1	VARCHAR	100
62	BILL_TO_ZIP_CODE	VARCHAR	11
63	BILL_TO_ATTENTION	VARCHAR	100
64	BILL_TO_ADDRESS_2	VARCHAR	80
65	REMITTANCE_NAME	VARCHAR	100
66	LINE_1	VARCHAR	100
67	LINE_2	VARCHAR	80
68	CITY	VARCHAR	32
69	STATE	VARCHAR	5
70	ZIP	VARCHAR	11

71	COUNTRY	VARCHAR	32
72	USED_LANGUAGE	CHAR	5
73	TELEPHONE	VARCHAR	32
74	BILLING_FREQUENCY	CHAR	2
75	DESCR_SPECIAL_TAXES	DECIMAL	28
76	TAX_CHARGE	DECIMAL	28
77	TAX_RATE	DECIMAL	28
78	COUNTRY_TAX_RATE	DECIMAL	28
79	CITY_TAX_RATE	DECIMAL	28
80	COMPANY_CODE	CHAR	4
81	BILLING_PERIOD_DATE	DATE	10
82	CONTACT_STATE_CODE	CHAR	2
83	STATE_ABBREVIATION	CHAR	2
84	USAGE_CODE	DECIMAL	28
85	CLASS_CODE	DECIMAL	28
86	ANNIVERSARY_DATE	DATE	10
87	PERIOD_START_DATE	DATE	10
88	PRO_RATED_MILEAGE	DECIMAL	28
89	TOTAL_MILEAGE	DECIMAL	28
90	MAIN_TELEPHONE_NUMBER	VARCHAR	255
91	ADMIN	CHAR	4
92	SUB_CENTER	CHAR	2
93	EDICROSSREFERENCENUMBER	CHAR	6
94	DATA_LOAD_DATE	TIMESTAMP	26
95	INVOICE_AMT	DECIMAL	28
96	CONTRACT_MILEAGE_CHARGE	DECIMAL	28
97	EXTENDED_RNTL_MILEAGE_CHARGE	DECIMAL	28
98	EXTRAS_MILEAGE_CHARGE	DECIMAL	28
99	INTERIM_MILEAGE_CHARGE	DECIMAL	28
100	CON_SUB_MILEAGE_CHARGE	DECIMAL	28
101	CON_TRIP_MILEAGE_CHARGE	DECIMAL	28
102	VEHICLE_CATEGORY	CHAR	8
103	CUSTOMER_UNIT_NUMBER	CHAR	10
104	VIN	CHAR	20
105	LTD_MILES_DRIVEN	DECIMAL	28
106	VEHICLE_MODEL	CHAR	8
107	UNIT_TYPE	CHAR	8
108	VEHICLE_MODEL_YEAR	DECIMAL	4
109	DO_PTL_INTER_CO	CHAR	1
110	MICRO_CONTROL_NUMBER	CHAR	6
111	PROFIT_CENTER	CHAR	4
112	ELECTRONIC_INVOICE_FLAG	CHAR	1
113	INTRM_SUB_MILEAGE_CHARGE	DECIMAL	28
114	INTRM_TRIP_MILEAGE_CHARGE	DECIMAL	28
115	EXRNTL_SUB_MILEAGE_CHARGE	DECIMAL	28
116	EXRNTL_TRIP_MILEAGE_CHARGE	DECIMAL	28
117	FUEL_ADJ_AMT	DECIMAL	28
118	TRANSXNTYPE	DECIMAL	28
119	SUBTYPE	VARCHAR	3
120	CUSTOMDATA4	VARCHAR	255

121	SPECIAL_TAXES_DESCRIPTION	VARCHAR	20
122	ALLOW_GUAR_MILEAGE_LIMIT	DECIMAL	28
123	DEFICIENT_REMAINING_MILES	DECIMAL	28
124	CHARGE_RATE	DECIMAL	6
125	AREA_NUMBER	CHAR	4
126	REGION_NUMBER	CHAR	4
127	GROSS_VEHICLE_WEIGHT	DECIMAL	7
128	VEHICLE_LICENSE_NUMBER	CHAR	10
129	EXTENDED_LINE_AMOUNT_CHARGES	DECIMAL	9
130	VEHICLE_MANUFACTURER	CHAR	12
131	VEHICLE_DESCRIPTION	CHAR	24
132	VEHICLE_LIFT_GATE	CHAR	1
133	SUPPLEASE_ID	NUMERIC	38
134	CONTRACT_KEY	DECIMAL	10
135	RNETSEQ_NUMBER	DECIMAL	10
136	RA_NUMBER	CHAR	10

- EDI\_MAINTENANCE**

Table for storing Maintenance invoice data.

**Table 3**

Index	Column Name	Data Type	Size
1	RECORD_ID	BIGINT	19
2	CUSTOMER_CORP	CHAR	4
3	CUSTOMER_DISTRICT	VARCHAR	64
4	CUSTOMER_NUMBER	VARCHAR	128
5	GROUP_SEPRATOR	CHAR	1
6	UNIT_NUMBER	VARCHAR	64
7	CUSTOMER_UNIT_NUMBER	CHAR	8
8	ACTIVITY_TYPE	CHAR	1
9	RO_NUMBER	VARCHAR	10
10	RO_DATE	DATE	10
11	COMPONENT_CODE	CHAR	3
12	DESCRIPTION	VARCHAR	80
13	BILLING_COMMENTS	VARCHAR	80
14	RO_SUBLOC	CHAR	2
15	SERVICE_LOC_NAME	VARCHAR	36
16	PERIOD_END_DATE	DATE	10
17	MILEAGE_PEG_CHARGE	DECIMAL	28
18	FIXED_PEG_CHARGE	DECIMAL	28
19	MARKUP_PARTS	DECIMAL	28
20	MARKUP_VENDOR	DECIMAL	28
21	EPA_AMT	DECIMAL	28
22	GARAGE_SUPP_AMT	DECIMAL	28
23	PO_NUMBER	CHAR	10
24	SNET_WO_NO	CHAR	10
25	SNET_JOBID_NO	DECIMAL	28
26	RO_MILEAGE	DECIMAL	28
27	GL_ACCT	CHAR	4

28	GL_SUB_ACCT	CHAR	2
29	LABOR_HOURS	DECIMAL	7
30	INV_NBR	VARCHAR	100
31	DUE_DT	DATE	10
32	X_TXN_AMT	DECIMAL	28
33	INVOICE_DATE	DATE	10
34	IN_SERVICE_DATE	DATE	10
35	BILLING_START_DATE	DATE	10
36	BILLING_END_DATE	DATE	10
37	CANCELLATION_DATE	DATE	10
38	STATE_TAX_TATE	DECIMAL	28
39	COUNTRY_TAX_TATE	DECIMAL	28
40	CITY_TAX_TATE	DECIMAL	28
41	STATE_ABBREVIATION	VARCHAR	5
42	CUSTOMER_PRIME	VARCHAR	64
43	BILL_GROUP	VARCHAR	64
44	RO_DISTRICT	CHAR	4
45	DISTRICT_NAME	VARCHAR	36
46	BILL_TO_COMPANY_NAME	VARCHAR	100
47	BILL_TO_ADDRESS_2	VARCHAR	80
48	BILL_DIST	VARCHAR	64
49	BILL_TO_ADDRESS_1	VARCHAR	100
50	BILL_TO_CITY	VARCHAR	32
51	BILL_TO_STATE	VARCHAR	5
52	BILL_TO_ZIP	VARCHAR	11
53	BILL_TO_ATTENTION	VARCHAR	100
54	PARTS_CHARGES	DECIMAL	28
55	LABOR_CHARGES	DECIMAL	28
56	OUSIDE_VENDOR_CHARGES	DECIMAL	28
57	PEG_CHARGES	DECIMAL	28
58	MIS_CHARGES	DECIMAL	28
59	FIXED_CHARGES	DECIMAL	28
60	TAX_CHARGES	DECIMAL	28
61	RO_EXISTS_FLAG	CHAR	1
62	PEG_EXISTS_FLAG	CHAR	1
63	MSC_EXISTS_FLAG	CHAR	1
64	STATE_CODE	DECIMAL	28
65	TAX_CODE	DECIMAL	28
66	STATE_SALES_TAX	DECIMAL	28
67	COUNTY_SALES_TAX	DECIMAL	28
68	CITY_SALES_TAX	DECIMAL	28
69	EXCEEDED_LIMIT	CHAR	1
70	MISCELLANEOUS_DESC	CHAR	80
71	MISCELLANEOUS_AMT	DECIMAL	28
72	STATE_USE_TAX	DECIMAL	28
73	COUNTRY_USE_TAX	DECIMAL	28
74	CITY_USE_TAX	DECIMAL	28
75	ADMIN_NUMBER	VARCHAR	4
76	SERVICE_LOC_PHONE	VARCHAR	255
77	BILL_LOC	VARCHAR	2

78	CUSTOMER_CROSS_REF	CHAR	20
79	DATA_LOAD_DATE	TIMESTAMP	26
80	COMPLAINT	CHAR	100
81	CAUSE	CHAR	100
82	CORRECTION	CHAR	100
83	PARTS_NUMBER	CHAR	17
84	PARTS_DESCRIPTION	CHAR	60
85	PARTS_UNIT_PRICE	DECIMAL	9
86	PARTS_QUANTITY	DECIMAL	4
87	PARTS_UNIT_CURRENCY_CODE	CHAR	3
88	PARTS_TOTAL_CHARGE	DECIMAL	9
89	PARTS_TOTAL_CURRENCY_CODE	CHAR	3
90	RO_CENTURY_DATE	DECIMAL	7
91	PERIOD_END_CENTURY_DATE	DECIMAL	7
92	TOTAL_PEG_TO_APPLY	DECIMAL	9
93	LABOR_CHARGE	DECIMAL	9
94	OTHER_CHARGES	DECIMAL	9
95	SALES_TAX_AMOUNT	DECIMAL	9
96	TOTAL_CHARGES	DECIMAL	9
97	INVOICE_DUE_DATE_CENTURY	DECIMAL	7
98	INVOICE_DATE_CENTURY	DECIMAL	7
99	IN_SERVICE_DATE_CENTURY	DECIMAL	7
100	BILLING_START_DATE_CENTURY	DECIMAL	7
101	BILLING_END_DATE_CENTURY	DECIMAL	7
102	CANCELLATION_DATE_CENTURY	DECIMAL	7
103	OIL_QTY	CHAR	1
104	ROAD_CALL	CHAR	1
105	ADJUSTMENT_REFERENCE	CHAR	10
106	STATEMENT_NUMBER	CHAR	10
107	CONS_TO_CUST_DIST	CHAR	4
108	PEG_INVOICE_NUMBER	CHAR	10
109	VEHICLE_MODEL	CHAR	8
110	VEHICLE_MANUFACTURER	CHAR	12
111	VEHICLE_MODEL_YEAR	DECIMAL	4
112	VEHICLE_SIZE	CHAR	8
113	UNIT_DESCRIPTION	CHAR	24
114	VIN	CHAR	20
115	ACT_CODE_DESC	CHAR	24
116	VENDOR_NAME	CHAR	28
117	CITY	CHAR	24
118	STATE	CHAR	2
119	VENDOR_PHONE	CHAR	12
120	ACCIDENT	CHAR	10
121	SYS_CD	CHAR	3
122	ASSY_CD	CHAR	3
123	PART_CD	CHAR	3
124	ACTION_CD	CHAR	2
125	WARRANTY_REBILL	CHAR	1
126	S_ACTL_TIME	DECIMAL	8
127	PROFILE_ID	CHAR	8

128	PROFILE_NAME	CHAR	10
129	JOB_DESC	VARCHAR	100
130	JOB_NOTES	VARCHAR	500
131	CUR_WORK_LOC	CHAR	6
132	WO_START	TIMESTAMP	26
133	WO_CREATED	TIMESTAMP	26
134	ARRIVAL	TIMESTAMP	26
135	PROMISED	TIMESTAMP	26
136	SCHEDULED	CHAR	1
137	QUANTITY	DECIMAL	6
138	PART_NUMBER	CHAR	17
139	OIL_QUANTITY	DECIMAL	6
140	MILEAGE	DECIMAL	7
141	MICRO_CONTROL_NUMBER	CHAR	6
142	DO_PTL_INTER_CO	CHAR	1
143	MARKUP_LABOUR	DECIMAL	9
144	MARKUP_HOURLY_LABOUR	DECIMAL	9
145	TRANSXNTYPE	DECIMAL	28
146	SUBTYPE	VARCHAR	3
147	CUSTOMDATA4	VARCHAR	255
148	WORK_ORDER_COMPLETE_TIME	TIMESTAMP	26
149	LINE_DESCRIPTION	CHAR	28
150	UNT_TAX_CH	DECIMAL	7
151	DOC_SOURCE_CODE	CHAR	3
152	RO_SEQ	DECIMAL	5
153	RO_JOB_WORK_ACC_CODE	CHAR	3
154	RO_JOB_START_DATE	TIMESTAMP	26
155	RO_JOB_OLD_WORK_CODE	DECIMAL	3
156	RO_JOB_REPAIR_PRIORITY_CLASS	CHAR	2
157	RO_JOB_REPAIR_REASON_CODE	CHAR	3
158	RO_JOB_DO_NOT_BILL	CHAR	1
159	INVOICE_TAX_CODE_1	CHAR	5
160	INVOICE_TAX_CODE_2	CHAR	5
161	INVOICE_TAX_CODE_3	CHAR	5
162	INVOICE_TAX_CODE_4	CHAR	5
163	INVOICE_TAX_CODE_5	CHAR	5
164	INVOICE_TAX_CODE_6	CHAR	5
165	INVOICE_TAX_AMT_1	DECIMAL	7
166	INVOICE_TAX_AMT_2	DECIMAL	7
167	INVOICE_TAX_AMT_3	DECIMAL	7
168	INVOICE_TAX_AMT_4	DECIMAL	7
169	INVOICE_TAX_AMT_5	DECIMAL	7
170	INVOICE_TAX_AMT_6	DECIMAL	7
171	LABOR_OR	DECIMAL	7
172	COST_TAX_YN	CHAR	1
173	PARTS_TAX_YN	CHAR	1
174	WARRANTY_CLAIM_NO	CHAR	10
175	AREA_NUMBER	CHAR	4
176	REGION_NUMBER	CHAR	4
177	GROSS_VEHICLE_WEIGHT	DECIMAL	7

178	VEHICLE_LICENSE_NUMBER	CHAR	10
179	FOREIGN_UNIT	CHAR	1
180	DOCUMENT_TYPE	CHAR	2
181	VEHICLE_CATEGORY	CHAR	8
182	VEHICLE_DESCRIPTION	CHAR	24
183	LEASE_TYPE	VARCHAR	255
184	VEHICLE_USE	VARCHAR	255
185	SUPP_MAINTENANCE_ID	NUMERIC	38
186	DBM_FLAG	CHAR	1
187	VENDOR_ID	DECIMAL	6
188	OUTSIDE_CHARGE_CODE	CHAR	2
189	IN_OR_OUT	CHAR	1

- **EDI\_SPECIAL**

Table for storing Special invoice data.

**Table 4**

Index	Column Name	Data Type	Size
1	RECORD_ID	BIGINT	19
2	BILL_TO_COMPANY_NAME	VARCHAR	100
3	BILL_TO_ADDRESS_1	VARCHAR	100
4	BILL_TO_CITY	VARCHAR	32
5	BILL_TO_STATE	VARCHAR	5
6	BILL_TO_ZIP	VARCHAR	22
7	INVOICE_DATE	DATE	10
8	BILL_TO_ADDRESS_2	VARCHAR	80
9	BILL_TO_ATTENTION	VARCHAR	200
10	SERVICE_LOC_PHONE	VARCHAR	510
11	DISTRICT_NAME	VARCHAR	128
12	STATEMENT_NUMBER	VARCHAR	100
13	TRANSACTION_DATE	DATE	10
14	FOREIGN_UNIT_FLAG	CHAR	1
15	UNIT_NUMBER	VARCHAR	64
16	DESCRIPTION_CODE	CHAR	3
17	DESCRIPTION	CHAR	40
18	CHARGE_AMOUNT	DECIMAL	28
19	REFERENCE_NUMBER_RO	CHAR	10
20	TOTAL_TAX	DECIMAL	28
21	STATE_TAX_AMOUNT	DECIMAL	28
22	COUNTY_TAX_AMOUNT	DECIMAL	28
23	CITY_TAX_AMOUNT	DECIMAL	28
24	SPECIAL_COMMENTS	CHAR	40
25	GL_ACCOUNT	CHAR	4
26	GL_SUBACCOUNT	CHAR	2
27	TAX_CODE	DECIMAL	28
28	INVOICE_NUMBER	VARCHAR	100
29	INVOICE_DUE_DATE	DATE	10
30	PERIOD_ENDING	DATE	10
31	CUST_PRIME	VARCHAR	64

32	BILL_GRP	VARCHAR	64
33	CUST_DIST	VARCHAR	64
34	BILL_DIST	CHAR	4
35	BILL_LOC	CHAR	2
36	CUST_Corp	VARCHAR	64
37	TRANSACTION_ID	DECIMAL	28
38	STATE_CODE	CHAR	2
39	STATE_TAX_CHARGE	DECIMAL	28
40	STATE_TAX_RATE	DECIMAL	28
41	COUNTRY_TAX_RATE	DECIMAL	28
42	CITY_TAX_RATE	DECIMAL	28
43	CUST_UNIT_NO	VARCHAR	64
44	VIN_NUMBER	CHAR	20
45	DATA_LOAD_DATE	TIMESTAMP	26
46	INVOICE_TOTAL	DECIMAL	28
47	REPAIR_ORDER_NUMBER	DECIMAL	12
48	CROSS_REFERENCE_NUMBER	CHAR	20
49	MICRO_CONTROL_NUMBER	CHAR	6
50	TRANSXNTYPE	DECIMAL	28
51	SUBTYPE	VARCHAR	3
52	CUSTOMDATA4	VARCHAR	255
53	INVOICE_TAX_AMOUNT	DECIMAL	28
54	AREA_NUMBER	CHAR	4
55	REGION_NUMBER	CHAR	4
56	GROSS_VEHICLE_WEIGHT	DECIMAL	7
57	VEHICLE_LICENSE_NUMBER	CHAR	10
58	FOREIGN_UNIT	CHAR	1
59	EXTENDED_LINE_AMOUNT_CHARGES	DECIMAL	9
60	VEHICLE_CATEGORY	CHAR	8
61	VEHICLE_MANUFACTURER	CHAR	12
62	VEHICLE_MODEL	CHAR	8
63	VEHICLE_MODEL_YEAR	DECIMAL	3
64	VEHICLE_DESCRIPTION	CHAR	24
65	SUPP_SPECIAL_ID	NUMERIC	38

- **EDI\_BODYSHOP**

Table for storing bodyshop invoice data.

**Table 5**

Index	Column Name	Data Type	Size
1	RECORD_ID	BIGINT	19
2	INVOICE_NUMBER	VARCHAR	100
3	PAYMENT_DUE_DATE	DATE	10
4	INVOICE_AMT	DECIMAL	28
5	INVOICE_DATE	DATE	10
6	BILL_DIST	VARCHAR	64
7	SERVICE_LOC_PHONE	VARCHAR	255
8	CUST_Corp	CHAR	4
9	CUST_DIST	VARCHAR	64

10	CUSTOMER_NUMBER	VARCHAR	128
11	CUST_PRIME	VARCHAR	64
12	BILL_GRP	VARCHAR	64
13	SERVICE_LOC_NAME	VARCHAR	36
14	TOTAL_REPAIR_CHARGE	DECIMAL	28
15	ADJUSTED_AMOUNT	DECIMAL	28
16	BILL_LOC	CHAR	2
17	DISTRICT_NAME	VARCHAR	36
18	UNIT_NUMBER	VARCHAR	64
19	CUSTOMER_UNIT_NUMBER	VARCHAR	64
20	TRANSXNTYPE	DECIMAL	28
21	SUBTYPE	VARCHAR	10
22	CUSTOMDATA4	VARCHAR	255
23	LEASE_TYPE	VARCHAR	255
24	TAX	DECIMAL	28
25	RO_NUM	VARCHAR	10
26	RO_DATE	DATE	10
27	PO_NUMBER	CHAR	10
28	RO_MILEAGE	DECIMAL	28
29	MODEL_YEAR	CHAR	4
30	RO_DISTRICT	CHAR	4
31	UNIT_TYPE	VARCHAR	30
32	UNIT_COLOR	VARCHAR	30
33	VIN	CHAR	20
34	DEPART_DT	DATE	10
35	MILES_IN	VARCHAR	10
36	MILES_OUT	VARCHAR	10
37	REPAIR_LOCATION	VARCHAR	10
38	REPAIR_LOCATION_PHONE_NUM	DECIMAL	28
39	LICENSE	VARCHAR	10
40	STATE_ABBREVIATION	VARCHAR	5
41	BILL_TO_COMPANY_NAME	VARCHAR	100
42	BILL_TO_ADDRESS_2	VARCHAR	80
43	BILL_TO_ADDRESS_1	VARCHAR	100
44	BILL_TO_CITY	VARCHAR	32
45	BILL_TO_STATE	VARCHAR	5
46	BILL_TO_ZIP	VARCHAR	11
47	BILL_TO_ATTENTION	VARCHAR	100
48	REMITTANCE_NAME	VARCHAR	100
49	REMIT_TO_ADDRESS_1	VARCHAR	100
50	REMIT_TO_ADDRESS_2	VARCHAR	80
51	REMIT_TO_CITY	VARCHAR	32
52	REMIT_TO_STATE	VARCHAR	5
53	REMIT_TO_ZIP	VARCHAR	11
54	REMIT_TO_COUNTRY	VARCHAR	32
55	ACTION_TAKEN	CHAR	50
56	DESCRIPTION	VARCHAR	40
57	TYPE	CHAR	2
58	PRICE	DECIMAL	28
59	ADJUSTED_PRICE	DECIMAL	28

60	LABOR_HOURS	DECIMAL	5
61	ADDITIONAL_LABOR_HOURS	DECIMAL	5
62	DEPARTMENT	CHAR	10
63	PAINT_HOURS	DECIMAL	5
64	ADDITIONAL_PAINT_HOURS	DECIMAL	5
65	DATA_LOAD_DATE	TIMESTAMP	26
66	VIN30	CHAR	30
67	SUPP_MAINTENANCE_ID	NUMERIC	38
68	DBM_FLAG	CHAR	1
69	VENDOR_ID	DECIMAL	6

- EDI\_INVOICE\_HEADER**

Table for summary/reference of all types of invoices.

**Table 6**

Index	Column Name	Data Type	Size
1	CUSTOMER_NUMBER	VARCHAR	6
2	CUSTOMER_BILL_GROUP	VARCHAR	2
3	CUSTOMER_DISTRICT	VARCHAR	4
4	INVOICE_NUMBER	VARCHAR	10
5	INVOICE_DATE	DATE	10
6	INVOICE_TYPE	CHAR	2
7	INVOICE_AMT	DECIMAL	28
8	CUST_STATUS	CHAR	1
9	CRTD_TMPSTMP	TIMESTAMP	26
10	LSTUPD_TMPSTMP	TIMESTAMP	26

- EDI\_PROCESS\_STATUS**

Table for keeping try of customer to run on daily basis by Edibatch.

**Table 7**

Index	Column Name	Data Type	Size
1	CUSTOMERID	INTEGER	10
2	STATUS	VARCHAR	50
3	CREATED_DT	TIMESTAMP	26
4	CREATED_BY	VARCHAR	10
5	MODIFIED_DT	TIMESTAMP	26
6	MODIFIED_BY	VARCHAR	10
7	DESCRIPTION	VARCHAR	300
8	RETRY_COUNT	INTEGER	10
9	PROCESS_FLAG	CHAR	1

- EDI\_INVOICE\_AUDIT\_LOG**

Table for keeping logs on invoices generated.

**Table 8**

<b>Index</b>	<b>Column Name</b>	<b>Data Type</b>	<b>Size</b>
1	RECORD_ID	BIGINT	19
2	DATALOGID	BIGINT	19
3	SENT_DATE	TIMESTAMP	26
4	ACKNOWLEDGEMENT	CHAR	1
5	FTPLOG_INFO	VARCHAR	200
6	SENT_STATUS	CHAR	1
7	PROCESSED_BATCH	VARCHAR	100
8	PROCESSED_SEQUENCE	INTEGER	10
9	INVOICE_NO	VARCHAR	20

- EDI\_DATA\_LOG**

A mapping table for mapping the customer details with the invoice generated.

**Table 9**

<b>Index</b>	<b>Column Name</b>	<b>Data Type</b>	<b>Size</b>
1	DATALOGID	BIGINT	19
2	CUSTOMERID	INTEGER	10
3	DATA_GENERATED_DATE	DECIMAL	7
4	FILEPATH	VARCHAR	250
5	FILETYPE	VARCHAR	20
6	ENCRYPTED	VARCHAR	20
7	RESEND_DATE	DECIMAL	7
8	RESEND_COUNT	INTEGER	10
9	FILE_PURGED	CHAR	1
10	SQLMAPID	INTEGER	10
11	STATUS	VARCHAR	20

- EDI\_APPLICATION\_CONSTANTS**

Table to store constants values used in the EDI application.

**Table 10**

<b>Index</b>	<b>Column Name</b>	<b>Data Type</b>	<b>Size</b>
1	CONSTANT_ID	INTEGER	10
2	CONSTANT_KEY	VARCHAR	50
3	CONSTANT_VALUE	VARCHAR	100
4	STATUS	CHAR	1
5	DESCRIPTION	VARCHAR	200

- EDI\_SQL\_TEMPLATE**

Table for storing billing queries for each customer setups.

**Table 11**

<b>Index</b>	<b>Column Name</b>	<b>Data Type</b>	<b>Size</b>
1	RECORDID	INTEGER	10
2	TEMPLATE_ID	INTEGER	10
3	TMPLATE_VERSION	DECIMAL	3
4	TMPLATE_FORMAT	CHAR	1
5	TMPLATE_SQL	VARCHAR	14250
6	TEMPLATE_COMMENT	VARCHAR	200
7	TEMPLATE_STATUS	CHAR	1
8	CREATED_DATE	DECIMAL	7
9	CHANGED_DATE	DECIMAL	7
10	CREATED_BY	CHAR	10
11	CHANGED_BY	CHAR	10
12	TEMPLATE_EFFECTIVE_DATE	DECIMAL	7
13	CUSTOM_HEADER	VARCHAR	2000
14	INVOICE_TYPE	VARCHAR	10
15	TEMPLATE_TYPE	VARCHAR	20
16	SCF_TEMPLATEID	VARCHAR	50

- EDI\_CUSTOMER\_CNTRL**

Table for storing details regarding customer setup.

**Table 12**

<b>Index</b>	<b>Column Name</b>	<b>Data Type</b>	<b>Size</b>
1	CUSTOMERID	INTEGER	10
2	CORP	VARCHAR	4
3	CUSTOMER_NUMBER	VARCHAR	6
4	BILLGROUP	VARCHAR	2
5	DISTRICT	VARCHAR	4
6	CUSTOMER_NAME	VARCHAR	100
7	INVOICE_TYPE	VARCHAR	10
8	EDI_CUSTOMER	CHAR	1
9	EDI_FORMAT_PGM	VARCHAR	30
10	CUSTOMER_LINK	CHAR	1
11	CUSTOMER_CROSS_REFID	VARCHAR	30
12	ENVIRONMENT	VARCHAR	5
13	EXCHANGE_TYPE	VARCHAR	10
14	EXCHANGE_FREQ	VARCHAR	10
15	TEMPLATE_TYPE	VARCHAR	20
16	ENCRYPT_TYPE	VARCHAR	20
17	FILE_TYPE	VARCHAR	20
18	HEADING	CHAR	1
19	CUSTOMER_EMAIL_TO	VARCHAR	250
20	CUSTOMER_EMAIL_CC	VARCHAR	250
21	CUSTOMER_EMAIL_BCC	VARCHAR	250
22	PENSKE_CONTACT_NAME1	VARCHAR	100
23	PENSKE_CONTACT_EMAIL1	VARCHAR	250
24	PENSKE_CONTACT_TEL1	VARCHAR	100

25	CUSTOMER_IT_CONTACT_NAME1	VARCHAR	100
26	CUSTOMER_IT_CONTACT_EMAIL1	VARCHAR	250
27	CUSTOMER_IT_CONTACT_TEL1	VARCHAR	100
28	CUSTOMER_IT_CONTACT_FAX1	VARCHAR	100
29	CUSTOMER_BUS_CONTACT_NAME1	VARCHAR	100
30	CUSTOMER_BUS_CONTACT_EMAIL1	VARCHAR	250
31	CUSTOMER_BUS_CONTACT_TEL1	VARCHAR	100
32	CUSTOMER_BUS_CONTACT_FAX1	VARCHAR	100
33	PENSKE_CONTACT_NAME2	VARCHAR	100
34	PENSKE_CONTACT_EMAIL2	VARCHAR	250
35	PENSKE_CONTACT_TEL2	VARCHAR	100
36	CUSTOMER_IT_CONTACT_NAME2	VARCHAR	100
37	CUSTOMER_IT_CONTACT_EMAIL2	VARCHAR	250
38	CUSTOMER_IT_CONTACT_TEL2	VARCHAR	100
39	CUSTOMER_IT_CONTACT_FAX2	VARCHAR	100
40	CUSTOMER_BUS_CONTACT_NAME2	VARCHAR	100
41	CUSTOMER_BUS_CONTACT_EMAIL2	VARCHAR	250
42	CUSTOMER_BUS_CONTACT_TEL2	VARCHAR	100
43	CUSTOMER_BUS_CONTACT_FAX2	VARCHAR	100
44	CREATED_DATE	TIMESTAMP	26
45	MODIFIED_DATE	TIMESTAMP	26
46	CREATED_BY	VARCHAR	20
47	MODIFIED_BY	VARCHAR	20
48	REC_STATUS	CHAR	1
49	CUSTOM_FILENAME	VARCHAR	65
50	COMMENTS	VARCHAR	200
51	ANNOTATION	CHAR	1
52	DO_NOT_BILL	CHAR	1
53	EMAIL_PENSKE_CONTACT	VARCHAR	20
54	INCLUDE_INDEX_FILE	CHAR	1
55	CURRENT_SEQUENCE	INTEGER	10
56	TRIMZEROSININDEXFILE	VARCHAR	1
57	TEXT_TYPE	CHAR	1
58	ZIP_FILES	VARCHAR	1
59	INDIVIDUAL_IMAGE	VARCHAR	1

- **EDI\_SQL\_MAP**

A mapping table for mapping the customer setup to its billing query.

Table 13

Index	Column Name	Data Type	Size
1	SQLMAPID	INTEGER	10
2	CUSTOMERID	INTEGER	10
3	TEMPL_ID	INTEGER	10
4	STATUS	CHAR	1
5	ENCRYPT	CHAR	1

6	COLUMN1	VARCHAR	200
7	COLUMN2	VARCHAR	200
8	STARTDATE	DATE	10
9	ENDDATE	DATE	10
10	CRTDATE	TIMESTAMP	26
11	MODDATE	TIMESTAMP	26

- **EDI\_FUNCTION**

Table for storing Security functions used in EDI Web application.

**Table 14**

Index	Column Name	Data Type	Size
1	FUNCTION_ID	INTEGER	10
2	FUNCTION_NAME	VARCHAR	60
3	FUNCTION_DESC	VARCHAR	100
4	CHANGED_BY	VARCHAR	20
5	CHANGED_ON	TIMESTAMP	26
6	CREATED_BY	VARCHAR	20
7	CREATED_ON	TIMESTAMP	26
8	DEPENDENT_ID	INTEGER	10

- **EDI\_GROUP**

Table for storing the user group like (Admin, MIS, BA)

**Table 15**

Index	Column Name	Data Type	Size
1	GROUP_ID	INTEGER	10
2	GROUP_NAME	VARCHAR	30
3	GROUP_DESC	VARCHAR	100
4	CHANGED_BY	VARCHAR	20
5	CHANGED_ON	TIMESTAMP	26
6	CREATED_BY	VARCHAR	20
7	CREATED_ON	TIMESTAMP	26
8	REC_STATUS	CHAR	1

- **EDI\_GROUP\_AUTHORIZATION**

Table for storing the mapping of which group have what for security access.

**Table 16**

Index	Column Name	Data Type	Size
1	GROUP_AUTH_ID	INTEGER	10
2	GROUP_ID	INTEGER	10
3	FUNCTION_ID	INTEGER	10

- **EDI\_USER\_GROUP**

Table for storing individual user to a certain Group.

**Table 17**

<b>Index</b>	<b>Column Name</b>	<b>Data Type</b>	<b>Size</b>
1	USER_GROUP_ID	INTEGER	10
2	SSO	VARCHAR	10
3	USER_NAME	VARCHAR	100
4	USER_INITIAL	VARCHAR	4
5	GROUP_ID	INTEGER	10
6	CREATED_ON	TIMESTAMP	26

## **Summary**

The main purpose of this dissertation is to automate the process of invoice generation and delivery, which will help my client to work efficiently and save cost and time.

## **Conclusion**

Following the dissertation work in this semester I have implemented the Software project management in current project which is going on with our team to Penske Truck Leasing Client in Capgemini Technology Service India Pvt. Ltd. After joining the current project I saw the opportunity of automating the billing process for my client and hence increasing their work efficiency. So after discussing all these within the project and with my supervisor I have implemented the report, tested and noted the output which shows significant improvement in the in my client's business which I have discussed step by step in this dissertation document. The knowledge of software project management as well as the deep insight of the problems and solution in projects helped me a lot towards the project enhancements contribution and for the dissertation too. With the help of automation of some works we have seen drastic improvement in efficiency, client relation and reliability to our team. The process before and after this dissertation shows a significant changes that we felt and have been through , at the same time we have developed better team coordination ,we have learn better team work and got the understanding and usefulness of Software Project Management and process improvement. This project will be very useful for us in terms of knowledge and practical experience gain. I hope all this experience and the work I have been through will give me greater understanding and approach for the future projects. At last learning has no end and knowledge gain always counts which I have learned and which will learn through all these process.

## **Directions for future work**

As we all know that every work will have future enhancement possible in it. My report also has some enhancement which we can do in the near future if our client agrees for it.

In current report the product we developed only has the capabilities of sending invoices either via email or FTP. In future we can add web services also for invoice delivery.

Also we can provide more industry standard templates for generation of invoices to support different-different client needs.

We can multi-thread the Batch job for faster generation and delivery of invoices.

Provide more customization on invoices generation as per client's needs to satisfy the future requirement.

## **Bibliography/References**

### **1. BOOK**

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## Checklist of items for the Final Dissertation Report

This checklist is to be attached as the last page of the report.

**This checklist is to be duly completed, verified and signed by the student.**

1.	<b>Is the final report neatly formatted with all the elements required for a technical Report?</b>	Yes / No
2.	Is the Cover page in proper format as given in Annexure A?	Yes / No
3.	Is the Title page (Inner cover page) in proper format?	Yes / No
4.	(a) Is the Certificate from the Supervisor in proper format? (b) Has it been signed by the Supervisor?	Yes / No Yes / No
5.	Is the Abstract included in the report properly written within one page? Have the technical keywords been specified properly?	Yes / No Yes / No
6.	<b>Is the title of your report appropriate? The title should be adequately descriptive, precise and must reflect scope of the actual work done.</b> Uncommon abbreviations / Acronyms should not be used in the title	Yes / No
7.	Have you included the List of abbreviations / Acronyms?	Yes / No
8.	Does the Report contain a summary of the literature survey?	Yes / No
9.	Does the Table of Contents include page numbers? (i). Are the Pages numbered properly? (Ch. 1 should start on Page # 1) (ii). Are the Figures numbered properly? (Figure Numbers and Figure Titles should be at the bottom of the figures) (iii). Are the Tables numbered properly? (Table Numbers and Table Titles should be at the top of the tables) (iv). Are the Captions for the Figures and Tables proper? (v). Are the Appendices numbered properly? Are their titles appropriate	Yes / No Yes / No Yes / No Yes / No Yes / No
10.	Is the conclusion of the Report based on discussion of the work?	Yes / No
11.	Are References or Bibliography given at the end of the Report? Have the References been cited properly inside the text of the Report? Are all the references cited in the body of the report	Yes / No Yes / No Yes / No
12.	Is the report format and content according to the guidelines? The report should not be a mere printout of a Power Point Presentation, or a user manual. Source code of software need not be included in the report.	Yes / No

### **Declaration by Student:**

I certify that I have properly verified all the items in this checklist and ensure that the report is in proper format as specified in the course handout.

### **Signature of the Student**

Place: CHENNAI  
 Date: 01/06/2017  
 Name: Arpit Kumar Tiwari  
 ID No.: 2015HP93018