



**RAMAKRISHNA MISSION RESIDENTIAL COLLEGE (AUTONOMOUS)**

**RAMAKRISHNA MISSION ASHRAMA**

**NARENDRAPUR, KOLKATA-700 103, W. B., INDIA**

(A Branch Centre of Ramakrishna Mission, Belur Math, Howrah-711202)

## **Project Completion Certificate**

Date: 03/06/2020

This is to certify that **Sri Sabuj Mondal** (ROLL NO: CSPG/028/18) a student of Department of Computer Science, Ramakrishna Mission Residential College(Autonomous), has undergone a Project work from January 15, 2020 to May 30, 2020 titled "**Vendor Master Management Project**".

Department of Computer Science  
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(Autonomous)  
Narendrapur, Kolkata-700 103

Dr. Siddhartha Banerjee  
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Department of Computer Science

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## **Project Completion Certificate**

Date: 03/06/2020

This is to certify that **Sri Abhirup Ghosh** (ROLL NO: CSPG/033/18) a student of Department of Computer Science, Ramakrishna Mission Residential College(Autonomous), has undergone a Project work from January 15, 2020 to May 30, 2020 titled "**Vendor Master Management Project**".

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**RAMAKRISHNA MISSION RESIDENTIAL  
COLLEGE(AUTONOMOUS),NARENDRAPUR**



**Vendor Master Management Project**

Sabuj Mondal (CSPG/028/18)

and

Abhirup Ghosh (CSPG/033/18)

**Department of Computer Science**

**2020**

## CONTENT

| CHAPTER | INDEX                    |                                    |
|---------|--------------------------|------------------------------------|
| I       | INTRODUCTION TO MDM      |                                    |
|         | 1                        | What is Master Data?               |
|         | 2                        | What is MDM?                       |
|         | 3                        | Need of MDM                        |
|         | 4                        | MDM Tools                          |
| II      | INTRODUCTION TO SEMARCHY |                                    |
|         | 1                        | What is Semarchy?                  |
|         | 2                        | Why Semarchy?                      |
|         | 3                        | Requirements for Semarchy          |
|         | 4                        | Architecture of Semarchy xDM       |
| III     | Semarchy App-Builder     |                                    |
|         | 1                        | Introduction                       |
|         | 2                        | Create New Model                   |
|         | 3                        | Create New Diagram                 |
|         | 4                        | Create Entity                      |
|         | 5                        | Create Application Component       |
|         | 6                        | Validate the Model                 |
|         | 7                        | Create Data Location and Deploy    |
|         | 8                        | Open the application               |
| IV      | Vendor Master            |                                    |
|         | 1                        | About Vendor Master                |
|         | 2                        | Use of Vendor Master Data          |
|         | 3                        | Effects of Poor Quality Data       |
|         | 4                        | Benefits of Improving Data Quality |
|         | 5                        | ERD for Vendor Master              |
|         | 6                        | Screenshots of the Application     |



## **Chapter I**

### **1. What is Master Data?**

The core data within the enterprise that describes objects around which business is conducted. It typically changes infrequently and can include reference data that is necessary to operate the business. Master data is not transactional in nature, but it does describe transactions. The critical nouns of a business that master data covers generally fall into four domains and further categorizations within those domains are called subject areas, sub-domains or entity types.

#### Characteristics of Master data

- a. Master data are the core data that are used as referenced data by many transactional data
- b. Master data are less prone to change.
- c. Master data is critical for operational and analytical business decision-making.

### **2. What is MDM?**

Master data management (MDM) is the core process used to manage, centralize, organize, categorize, localize, synchronize and enrich master data according to the business rules of the sales, marketing and operational strategies of your company.

The efficient management of master data in a central repository gives you a single authoritative view of information and eliminates costly inefficiencies caused by data silos.

Organizations, groups of organizations, may establish the need for master data management when they hold more than one copy of data about a business entity. Holding more than one copy of this master data inherently means that there is an inefficiency in maintaining a "single version of truth" across all copies. Unless people, processes and technology are in place to ensure that the data values are kept aligned across all copies, it is almost inevitable that different versions of information about a business entity will be held. This causes inefficiencies in operational data use, and hinders the ability of organizations to report and analyze. At a basic level, master data management seeks to ensure that an organization does not use multiple (potentially inconsistent) versions of the same master data in different parts of its operations, which can occur in large organizations.

Other problems include (for example) issues with the quality of data, consistent classification and identification of data, and data-reconciliation issues. Master data management of disparate data systems requires data transformations as the data extracted from the disparate source data system is transformed and loaded into the master data management hub. To synchronize the disparate source master data, the managed master data extracted from the master data management hub is again transformed and loaded into the disparate source data system as the master data is updated. As with other Extract, Transform, Load-based data movement, these processes are expensive and inefficient to develop and to maintain which greatly reduces the return on investment for the master data management product.

### 3. Need of MDM

a. Create single trusted view of master data across the organization.

b. Improved efficiency

By eliminating problems like unreadable or inaccessible data, your workforce has fast, reliable access to any needed data at all times. This greatly speeds up productivity come crunch time.

c. Eliminate poor quality data

By consolidating your data in one place, all stakeholders have access to the most up to date data.

d. Improved decision-making

Combining your data in the one place allows for better insights into your requirements

e. Superior regulatory compliance

By organizing your data in a professional, centralized way it is easier to keep track of what you actually have and that it keeps with any compliance laws applicable

f. Effective Prioritizing

This software allows for a unified view of strategic customer relationships, further improving key business decisions



#### 4. Different MDM tools

1. Profisee
2. Semarchy xDM
3. Orchestra Networks EBX
4. Reltio
5. Ataccama
6. Software AG webMethods OneData
7. SAP Master Data Governance
8. Oracle MDM
9. IBM InfoSphere MDM
10. Microsoft SQL Server
11. SAS MDM
12. Informatica MDM

And so on there are many other solutions

## **Chapter II**

### **1. Introduction to Semarchy**

Semarchy is the intelligent data Hub company

Our xDM platform turns business users into data champions. It empowers organizations of any size to build trusted data applications quickly, with fast time to value using a single software platform for governance, master data, reference data, data quality, enrichment, and workflows.

Semarchy is a Java software which require Tomcat server to run the application.

Semarchy offers multi-vector MDM through its xDM platform. The platform uses algorithms and material design to make data stewardship and governance collaborative. Semarchy also takes an agile, iterative approach to implementing its xDM platform.

#### **Core Features:**

- a. Guided authoring for data maintenance
- b. Flexible data modeling
- c. Collaborative and agile data governance
- d. Match and merge capabilities to maintain a single source of truth
- e. Multi-vector MDM for data taxonomies
- f. Device traceability



**Strengths:**

- a. Offers integrated modeling without any additional code
- b. Delivers strong scalability with options for AWS cloud or on premise setup
- c. Supports an iterative implementation approach that allows organizations to start small and grow and evolve MDM capabilities over time
- d. Includes metrics, dashboards, versioning and lineage as standard features of the xDM platform

**Weaknesses:**

- a. Minimal relationships with major system integrators
- b. Smaller proven customer base
- c. Relatively new entrant to the MDM market
- d. Collaborative data governance is not part of the core xDM solution

## 2. Requirements for Semarchy



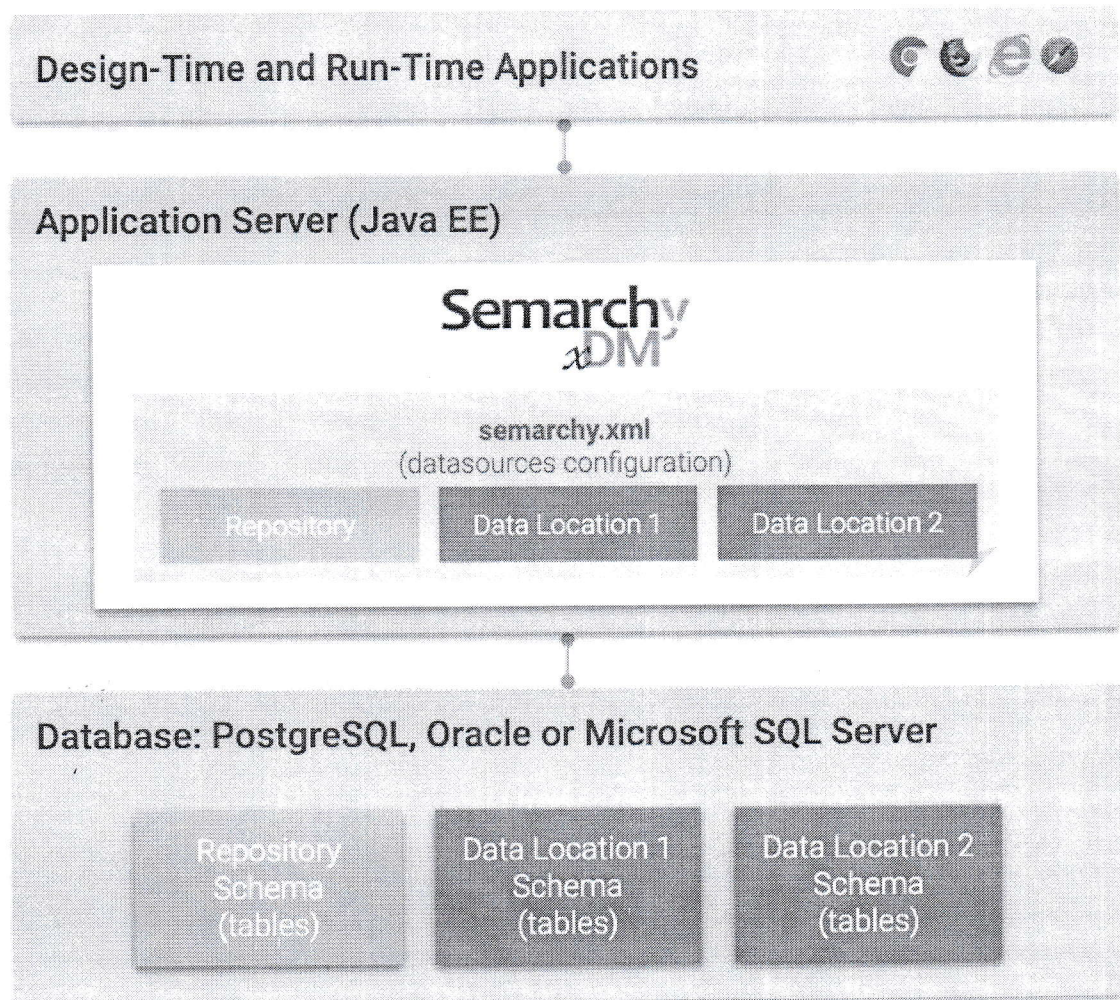
## 3. The xDM Architecture

The Semarchy xDM architecture includes the following

Components:

- A web browser.** The Application Builder and data steward applications run in a browser such as Google Chrome, Firefox, Safari or Microsoft Edge.
- A Java EE Application Server** (Tomcat, Oracle WebLogic, Glassfish, etc) running the Semarchy xDM Application.

- c. A **database** instance (Oracle, PostgreSQL or SQL Server) containing the Repository (where xDM stores its metadata) and one or more data locations (where xDM stores your organization's data).





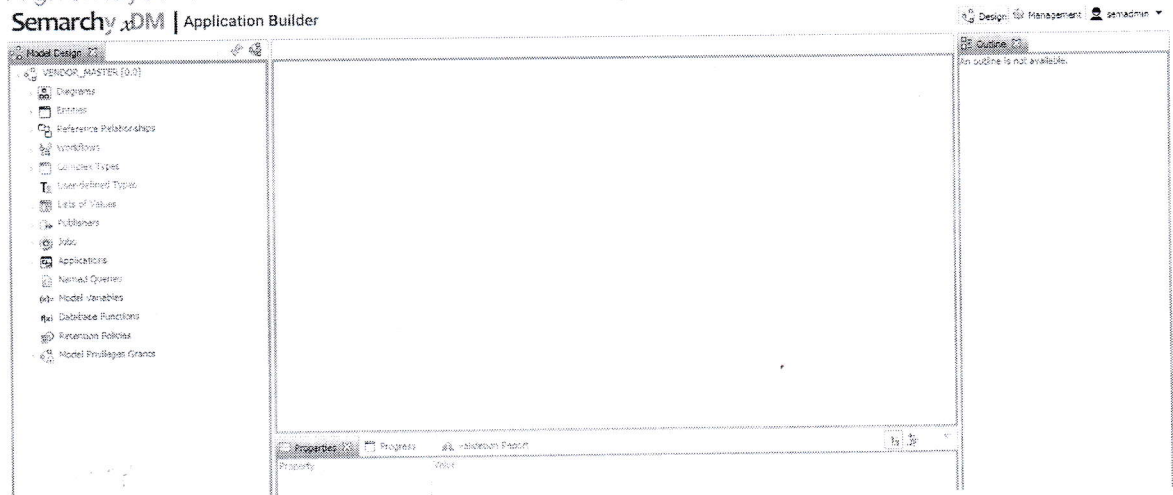
## Chapter III

### 1. The App-Builder INTRODUCTION

The Semarchy Application Builder is the graphical interface used by Semarchy xDM model designers and managers.

This user interface exposes information in panels called *Views* and *Editors*.

A given layout of views and editors is called a *Perspective*.



### PERSPECTIVES

There are two perspectives in Semarchy Application Builder:

**Model Design:** this perspective is used to edit or view a model edition.

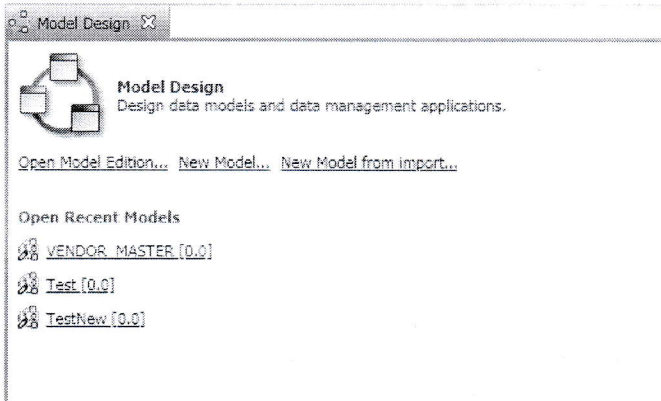
**Management:** this perspective is used to:

- Create and manage data locations, and deploy model editions in these locations.
- Manage model editions and branches.
- Manage Job executions.

## Step to build an application

### 2. Create New Model

#### Semarchy xDM | Application Builder



Click on the New Model... option

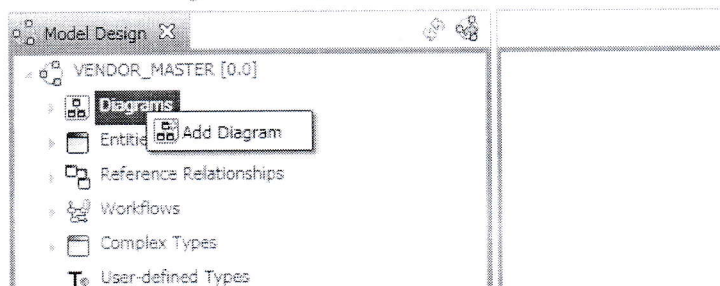
The screenshot shows the 'Create a New Model' dialog box. The title bar says 'Create a New Model'. The main heading is 'Model'. Below the heading, it says 'Create a new model and the first model edition'. There is a logo on the right side of the dialog. The dialog contains several fields: 'Auto Fill:' with a checked checkbox, 'Name:' with the text 'VendorMaster', 'Label:' with the text 'Vendor Master', and 'Description:' with an empty text area. At the bottom, there are two buttons: 'Finish' and 'Cancel'.

Fill up the fields



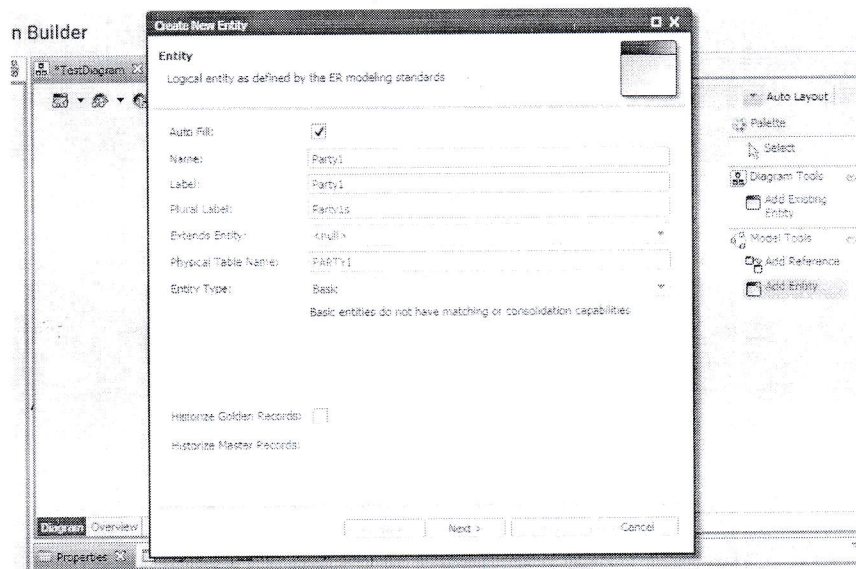
### 3. Create New Diagram

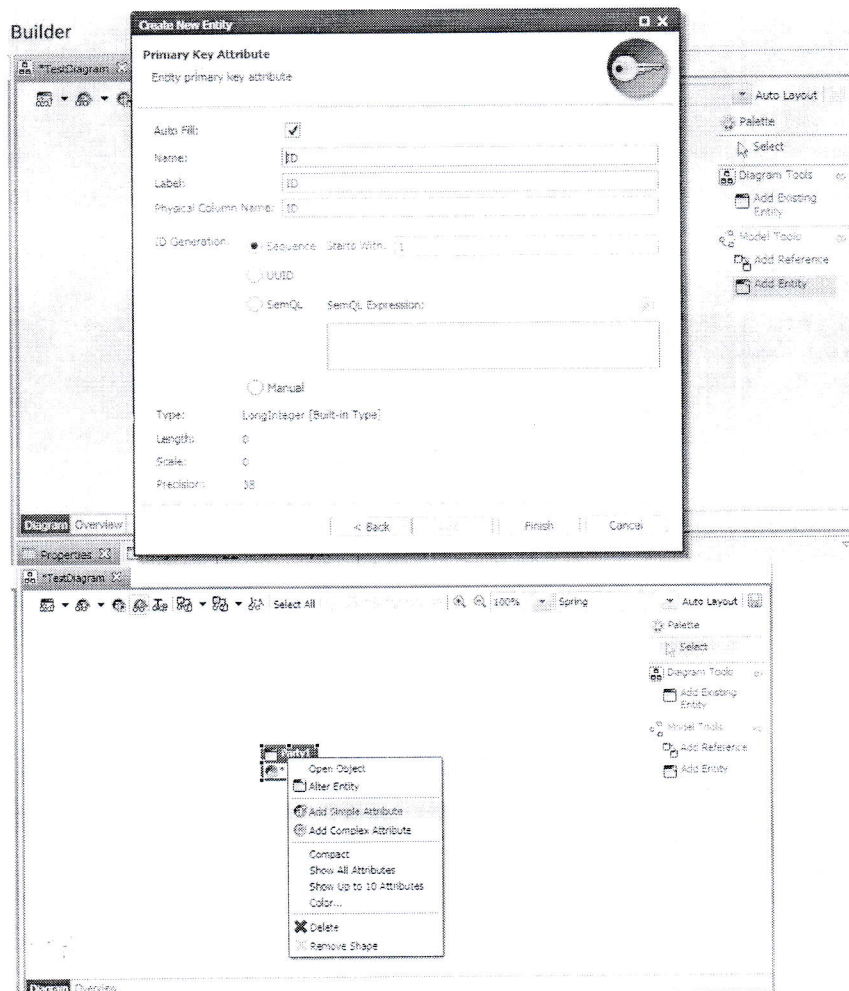
## Semarchy *xDM* | Application Builder



### 4. Create Entity

Now create all the entity and references in the diagram





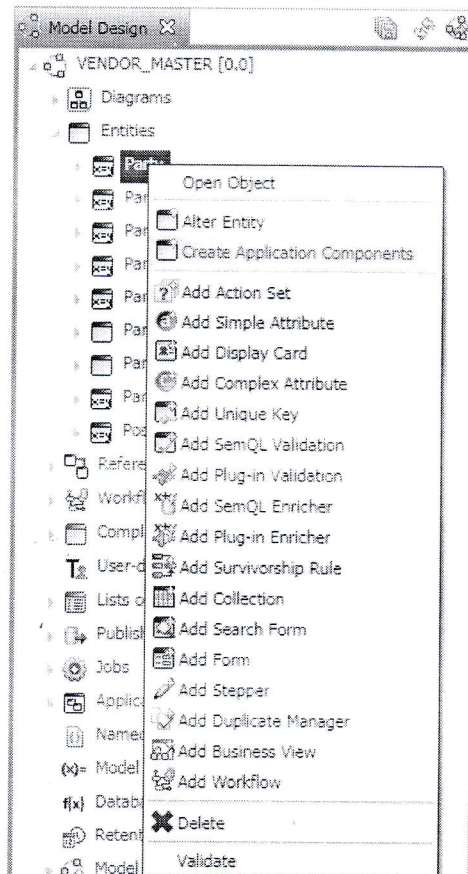
Add all the required attributes in the entity

Here we can have attributes of many types like Simple attribute (String, Number, Date, ShortInteger, Timestamp etc), List of Values (This can be created to make a lookup or dropdown from where we have to select one. Eg. : AccountType, Country etc), Complex Attributes (An attributes containing many fields. Eg. : Address{City, Post, Country}, Phone{CountryCode, RegionCode, Carrier, LineNumber} etc.)

## 5. Create Application Component

After creating all the entity go to one of the entity and then create application components. By creating the application component it will automatically create all the required forms for data entry all the business view of the application.

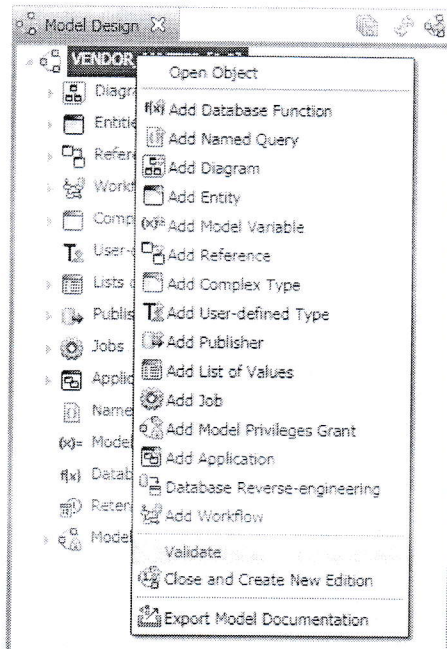
**Semarchy 10 DM | Application |**



## 6. Validate The Model

Now validate the model for any error or warnings

Semarchy xDM | Application I



## 7. Create Data Location

After successful validation go to Management tab at top right corner and then right click on the Data Location and then select New Data Location and it will pop-up a screen

**Create New Data Location**

**Data Location**

Name must have a value.

Auto Fill: ☒

Name:

Label:

JNDI Data Source Name:

Description:

Location Type:

Deployed Model Edition:

Fill up all the fields then click on Finish

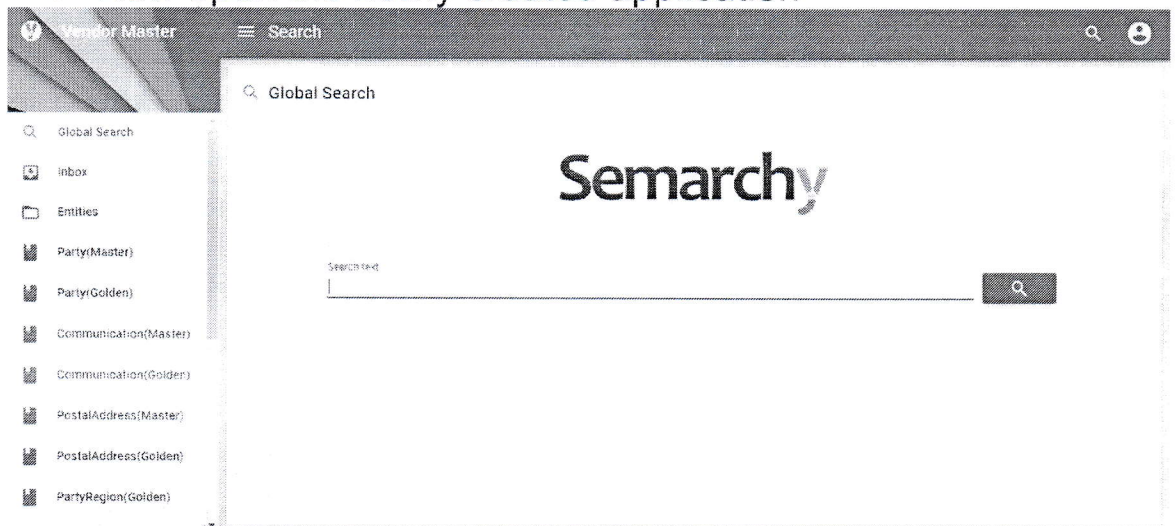
## 8. Open The Application

- Now go to the semarchy Welcome page and you will be see the newly created application





➤ Now open the newly created application



## **Chapter IV**

### **1. About Vendor Master**

**Vendor:** Vendor is a Business Partner from whom the material or services can be procured.

(Or)

Vendor is a business partner to whom amounts are payable for goods delivered/ services performed by him.

**Vendor Master:** It contains the complete data of Vendor to whom the a company conducts business with

#### **Types of Vendor**

- **Internal Vendors:** Supplying by another company code under the same client
- **External Vendors:** A company or a person who supplies material from outside (Indigenous and imported vendor)
- **Regular Vendors:** A vendor supplies the material at client level. He supplies to entire corporate group.
- **Fixed Vendor:** The vendor from whom company will take certain materials, which are low value and high volume type
- **One time Vendors:** Supply only once. (If RFQ/PO is sent to the vendor, you have to enter the vendor data manually)

### **2. Use**

The vendor master database contains information about the vendors that supply an enterprise. This information is stored in individual vendor master records. A vendor master record contains the vendor's name and address, as well as data such as:

- a. The currency used for ordering from the vendor
- b. Terms of payment
- c. Names of important contact persons (sales staff)

Since, to the accounts department, vendors are generally creditors (accounts payable), the vendor master record also contains accounting information, such as the relevant control account (reconciliation account) in the general ledger.

### 3. Effects of Poor Quality Data

Poor quality Vendor Master Data creates Legal and Financial Risks

If vendor master data quality is low, decision-makers may under- or over-estimate how much the company is spending with a given supplier. They'll tend to misunderstand how many departments or business units are purchasing from the same vendor. And they may miscalculate their tax obligations, leading the business to incur fines or penalties.

When it's time for an audit, poor quality data can have lasting consequences. Whether the audit is routine, or your company is subject to additional scrutiny because it's competing for an additional round of venture funding or being acquired, being able to supply correct information on vendors and customers is critical during the due diligence process. In the best-case scenario, mistakes and inaccuracies can introduce roadblocks and delay deals. In the worst, it can lower the valuation of your company.



What's more, poor vendor master data quality can leave your business more vulnerable to fraud. Without accurate vendor VAT validation or banking information at hand, it's more difficult to identify imposters—or vendors who lack the legal qualifications necessary for the job at hand.

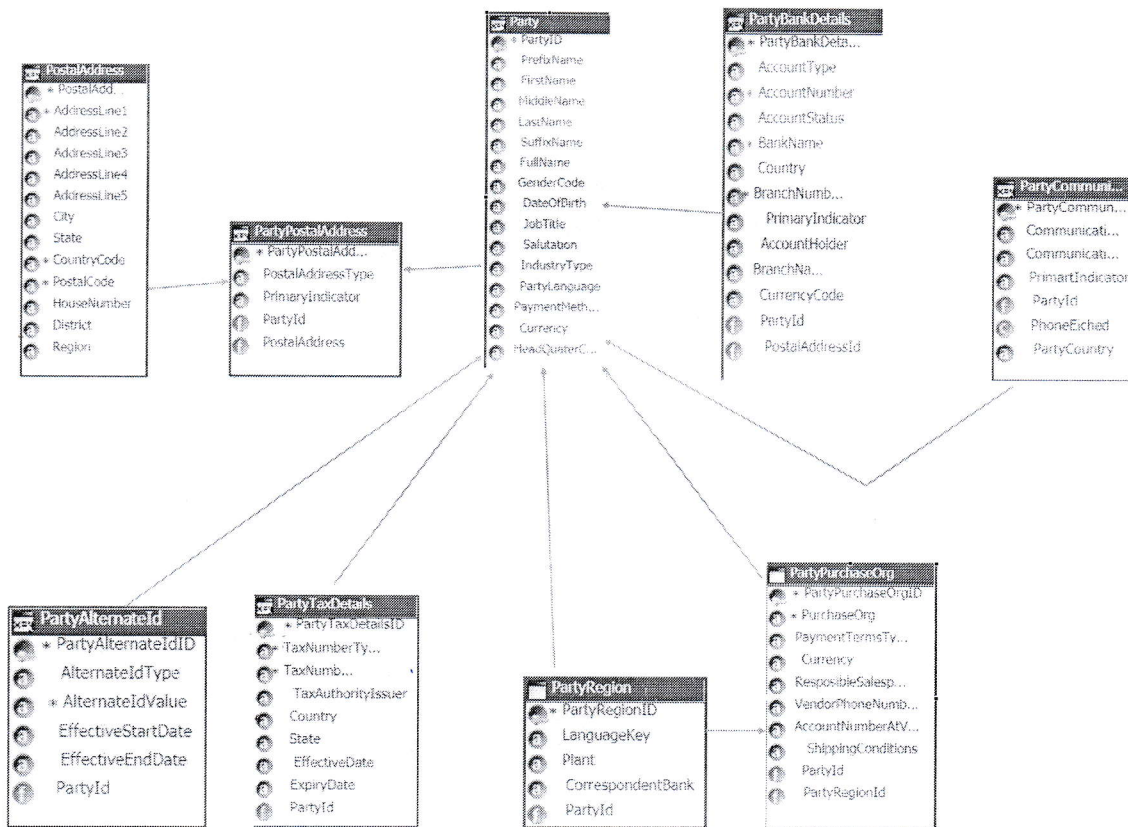
#### 4. Improving Vendor Master Data Quality Means Better Supply Chain Relationships

No business is an island. The better you understand—and more accurately you keep track of—your partners and suppliers, the more readily you can give them what they need, including prompt payment, rapid provision of records and reporting, and efficient ordering.

Other benefits of high-quality vendor master data include:

- smoother technology transformation projects, including easier enterprise resource planning (ERP) system upgrades and migrations (such as to SAP)
- maximize supply chain cost effectiveness and procurement efficiency
- ease vendor account maintenance
- better tracking of digital supply chain and trusted business partners
- more accurate tax reporting

## Entity Relationship Diagram(ERD) for Vendor Master







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COLLEGE(AUTONOMOUS),NARENDRAPUR**



**Development of Data Generation Tool**

**Sanu Shaw**  
**CSPG/026/18**

**Department of Computer Science**

**2020**

## TABLE OF CONTENTS:

- Acknowledgement
- Abstract
- About the company
- Overview of the Product
- Technologies used
- My roles and responsibilities
- About my work
- Conclusion
- Certificate of Internship



## ACKNOWLEDGEMENT:

Firstly I would like to thank WizCon Digital for arranging this internship program for us. I would also like to thank **Mr. Goutam Kuila** and **Mr. Samantak Panda** for recruiting me as an intern and creating such a wonderful learning environment.

I also express my sincere thanks to **Sir Siddhartha Banerjee** and **Sir Bibek Ranjan Ghosh** for giving us the opportunity of the internship training.

## ABSTRACT:

The document contains information about the organization and the responsibilities performed throughout the period between **January to June 2020**.

More than a plain account of tasks, the objective of this report is to reflect upon the knowledge and experiences collected during the internship from the perspective of an MSc student.



## **ABOUT THE COMPANY:**

Wizcon Digital Services (WDS) is an established IT company with presence in 3 continents. It has around 48 agile employees passionately working to drive business value. They bring state-of-the-art solutions to address the challenges faced by the data ecosystem in current digital progressive age. They have a consulting led business outcome based approach with regular monitoring of RoI & KPIs. WDS has the right mix of functional and technical capabilities in every assignment.

## **OVERVIEW OF THE PRODUCT:**

The product helps business users ingesting raw structured Or unstructured data and take appropriate action on the data to cleanse them by applying few data quality and standardization transformations and creates best quality trusted data set which can be further leveraged by the analytics team for creating data insight.

## **TECHNOLOGIES USED:**

- Angular 8 for front end
- Python 3.8(Flask) for backend
- MongoDB 4.2 to store User given data
- Microsoft SQL Server 18 to store operational Data



## **MY ROLES AND RESPONSIBILITIES:**

- We worked on an in house data preparation tool.
- I have implemented the following in the product:
  1. JSON Import.
  2. Add reCAPTCHA.
  3. Data Transformations like Group by count, age calculation, remove/replace junk character, date formatting.
  4. Convert HTTP to HTTPS.

## ABOUT MY WORK:

### 1) Implementation of JSON Import

- Used packages- Json, Pandas.
- Methodology:
  - i. Read the file after checking the format.
  - ii. Send a Post request by setting the file data (in byte format) in the request body.
  - iii. At backend, from the request, the data is fetched and processed.
  - iv. The processed data is stored in the database.

### 2) Implementation of reCAPTCHA

- Google reCAPTCHA version 2 used.
- Methodology:
  - i. Register at Google reCaptcha with desired IP address (domain name)
  - ii. For validating sender Post request along with the site key to a specific URL (<https://www.google.com/recaptcha/api/siteverify>).
  - iii. This request is processed by Google reCaptcha on the basis of a secret key and sends a response.
  - iv. Based on the type of the response, the user is either permitted or restricted.



### 3) Implementation of Data Transformation

- Group by count
  - Used pandas library.
- Age calculation & date formatting
  - Used datetime, dateutil library.
- Remove/replace junk character
  - Used str.replace() function.
- Methodology:
  - i. After selecting any transformation for a column, a temporary column is added with the original data set which shows how the data will be changed after applying transformation.
  - ii. If the user saves the transformation then the transformation is applied on the original data and saved in the database.
  - iii. The user can also redo any applied transformation.
- Demonstration:

| First name | Last name | Date of reporting | Preview      |
|------------|-----------|-------------------|--------------|
| Abhirup    | Shaw      | 23-05-19          | 1Y: 1M: 6D   |
| Abhirup    | Chandra   | 06-11-19          | 1Y: 18D      |
| Sabuj      | Mandol    | 06-12-2019        | 1Y: 17D      |
| Sabuj      | Ghose     | 2019/2/3          | 1Y: 4M: 26D  |
| Sanu       | Shaw      | 14-06-19          | 1Y: 15D      |
| Sanu       | Chandra   | 15-05-19          | 1Y: 1M: 14D  |
| Sanu       | Shaw      | 23-Mar-19         | 1Y: 3M: 6D   |
| Sanu       | Chandra   | 2019-04-22        | 1Y: 2M: 7D   |
| Sanu       | Shaw      | 06-11-19          | 1Y: 18D      |
| Sanu       | Chandra   | 0-0-0             | INVALID DATE |
| Tanmoy     | Shaw      | 31-21-2019        | INVALID DATE |

(After saving the age transformation)

| First name | Last name | Date of reporting | Age          |
|------------|-----------|-------------------|--------------|
| Abhirup    | Shaw      | 23-05-19          | 1Y: 1M: 6D   |
| Abhirup    | Chandra   | 06-11-19          | 1Y: 18D      |
| Sabuj      | Mandol    | 06-12-2019        | 1Y: 17D      |
| Sabuj      | Ghose     | 2019/2/3          | 1Y: 4M: 26D  |
| Sanu       | Shaw      | 14-06-19          | 1Y: 15D      |
| Sanu       | Chandra   | 15-05-19          | 1Y: 1M: 14D  |
| Sanu       | Shaw      | 23-Mar-19         | 1Y: 3M: 6D   |
| Sanu       | Chandra   | 2019-04-22        | 1Y: 2M: 7D   |
| Sanu       | Shaw      | 06-11-19          | 1Y: 18D      |
| Sanu       | Chandra   | 0-0-0             | INVALID DATE |
| Tanmoy     | Shaw      | 31-21-2019        | INVALID DATE |

#### 4) Convert HTTP to HTTPS

- Used OpenSSL for front end.
- Used pyOpenSSL for backend.
- Methodology:
  - i. Create a certificate by providing the required information:
    - Country
    - State
    - Organisation name
    - Type
    - Domain name
  - ii. Incorporate the certificate into the application.
  - iii. Follow the above steps for both front end and backend.



## **CONCLUSION:**

During this internship period, I have gathered a lot of knowledge and experience which will help me in my future endeavours. I learnt how to work as a team and how to manage tasks amongst the team members to meet a deadline. This actual working environment gave us the opportunity to learn not only work ethics but also communication skills.

Apart from the various soft skills, I now know two new frameworks Angular 8 and Flask, which are currently of great demand in the IT industry.

Altogether, I had a great experience working with Wizcon Digital Services.

# CERTIFICATE OF INTERNSHIP:



WIZ DIGITAL SERVICES PVT LTD  
WWW.WIZDIGITAL.COM

July 6<sup>th</sup>, 2020

Sub: Internship Certificate

## To Whom It May Concern

This is to certify that **Mr Sanu Shaw**, student of **Ramkrishna Mission Residential College, Narendrapur**, pursuing his degree in **M.Sc in Computer Science (2018-20)** has successfully completed an internship with **Wiz Digital Services Private Limited** from **6 January 2020 to 30 June 2020**.

During his internship, Sanu worked on an in-house data preparation tool. The technologies used are Angular 8 as front-end and Flask as the back-end, MongoDB, and Microsoft SQL as database.

During the course of his internship, Sanu was found to be hard working and diligent and we are happy to certify that he has completed his internship successfully.

We wish him all the best in his future endeavors.

Thanking you.

Yours Sincerely,

For Wiz Digital Services Private Limited

*AH Rahman*



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Aurobindo Habib Rahman  
Assistant Manager - HR  
(Human Resource Department)





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**Development of Data Preparation Tool**

**Tanmoy Chandra**

**CSPG/027/18**

**Department of Computer Science**

**2020**

## Acknowledgement

First of all I am grateful to the Almighty, Who graces us, and without blessing from whom, we cannot think of breathing to learn. This is my internship training report after completion of internship training at Wizcon Digital Services.

I wish to express my sincere thanks to Sir Bibek Ranjan Ghosh & Sir Siddhartha Banerjee for giving us the opportunity of the internship training. I also thank to Samantak Panda, Internal Product Manager of Wizcon Digital Services also who is supervisor in charge for the internship training,

My special thanks are due to the company's employees for their fullest support which contributed immensely for successful completion of this internship training. I wish to express my profound gratitude to all of them.

Thank You,

Tanmoy Chandra

CSPG/027/18

Department of Computer Science

RKMRC, Narendrapur

## **Overview of the Product**

The product helps business users ingesting raw structured Or unstructured data and take appropriate action on the data to cleanse them by applying few data quality and standardization transformations and creates best quality trusted data set which can be further leveraged by the analytics team for creating data insight.

## **What Languages have been used:**

### **Client Side Language:**

As per the project requirement I have to use Angular 8 framework as front-end.

Angular is a platform and framework for building single-page client applications using HTML and Type-Script. Angular is written in Type-Script. It implements core and optional functionality as a set of Type-Script libraries that you import into your apps.

To get the required data we have to send various requests to the server, and after that, server fetches the data and response back to the client side.

### **Server side language:**

As per the project requirement I have to use Python 3.8 as server side language.

API Requests in Python APIs work much the same way, except instead of web browser asking for a webpage, your program asks for data. This data is usually returned in JSON format. In order to get the data, we make a request to a webserver.



I have to make various micro programs which can provide the required data to the client side. To do this I also have to make connection with the database. After fetching the data and processing it I have to send the data to the front end as JSON format.

### **What Databases have been used:**

I have used Mongo DB 4.2 to store User uploaded data.

MongoDB is a document-oriented NoSQL database used for high volume data storage. Instead of using tables and rows as in the traditional relational databases, MongoDB makes use of collections and documents. Documents consist of key-value pairs which are the basic unit of data in MongoDB. We don't know what will be the structure of the data, the user is going to upload. So it is better to store the data as Key Value pair format in Mongo DB.

Also I have used Microsoft SQL Server to store operational data & user credentials. The management studio used in this purpose is Microsoft SQL Server Management Studio 18.

SQL Server Management Studio (SSMS) is an integrated environment for managing any SQL infrastructure. Use SSMS to access, configure, manage, administer, and develop all components of SQL Server.

To store all the account related details like, user id, password, phone number, organization name etc. the SQL server has been used. So, 2 different databases have been used for different purposes.

## **My Roles & Responsibilities:**

- Creation of user role matrix. Developing data model
- Creating services to create, update, delete and assign roles, modules, use role etc.
- Developed “Export Data as Excel & CSV” functionality to help business users directly download the exportable data to their electronic devices.
- Automated load testing using J-meter.
- Fixed some minor defects in the product.

We will discuss all the tasks one by one in the below section.

### **Creation of User Role Matrix:**

Suppose there are multiple types of employee works in an organization. Everyone has different tasks and different roles, that's why their access to the software will also be different for every employee.

- Product Administrator (all access)
- Organization Head (read, write, create, delete)
- Project Manager (read, write, create)
- Data Engineer (read, write)
- Data Consumer (read)
- <Enterprise Custom Role>

Organization Head should have all the access to the software, Project manager who is below Organization head, he should have less access than the org. head. Like this there is 4 such roles, which is provided as inbuilt roles in the software. But roles also can vary organization to organization, so there is option for creating custom role as per the requirement.

## Developing database Schema:

To develop the user role management concept I have created the database tables, these tables are interconnected to each other, there is an user table which contains all the details of an user, there is a role table which contain all the roles and role descriptions. There is a user-org table which will connect the user table and the org table. User-role table will connect users and the roles, using this table we can identify which user has which roles. There can be multiple role of a same user.

Role access matrix table contains all the indicators for read, write, delete, no access in modular basis. And the module table contains all the name of the modules. This table is also connected with the Role access matrix table.

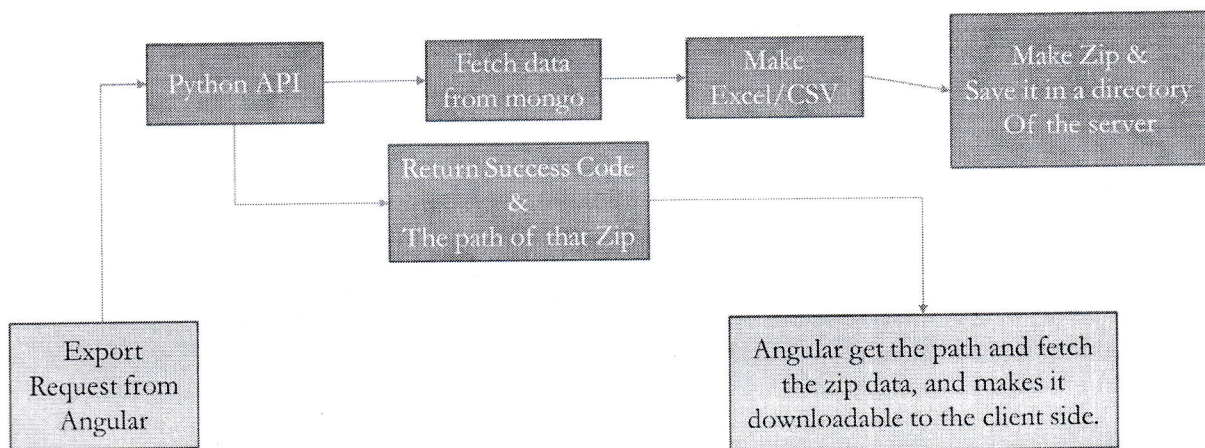
I have written the insert, update delete all the queries in SQL Alchemy in Python, which controls all these tables and gives the desired access to the user.

- User table
- Role table
- User-org table
- User-role table
- Role access matrix table
- Organization table
- Module table



### Export Data as Excel & CSV:

After applying some transformation when the user wants to download that transformed data in his local machine, we are giving 2 type of downloading/exporting option one is Excel format and another is CSV format. And when user clicks the appropriate option, then the data is being downloaded in his machine in that particular format.



To implement this functionality I have to create the flow from the front to the back and the database also. The diagram which I have created is given above. At first the angular takes the user requirement and send a request to the server api with the file id and the desired format. After receiving the request python api fetches the data from Mongo db no sql database, and take the data into a data frame. After that the data frame is converted to excel or csv as per the user request, and after taking that file I've created a zip file containing that file. And saved that file in a temp folder of the server. And sent the file path and the file name to angular, after getting these details angular fetches that file and make that downloaded in the user's computer. This is how the functionality works.



### Automated load testing using J-meter:

- J-meter is used as a load testing tool for analyzing and measuring the performance of a variety of services,
- It mainly focus on the web applications.

When the web app is partially ready to be used, we need to do a testing on that app to check the app is working perfectly or not, there are two type of testing one is gui testing, another is load testing, we have to use the app with 10 users, 100 users, 1000 users and so on, and have to check in this increasing number of users which api is taking too much time or which request response is taking un desired time. This type of testing is called load testing.

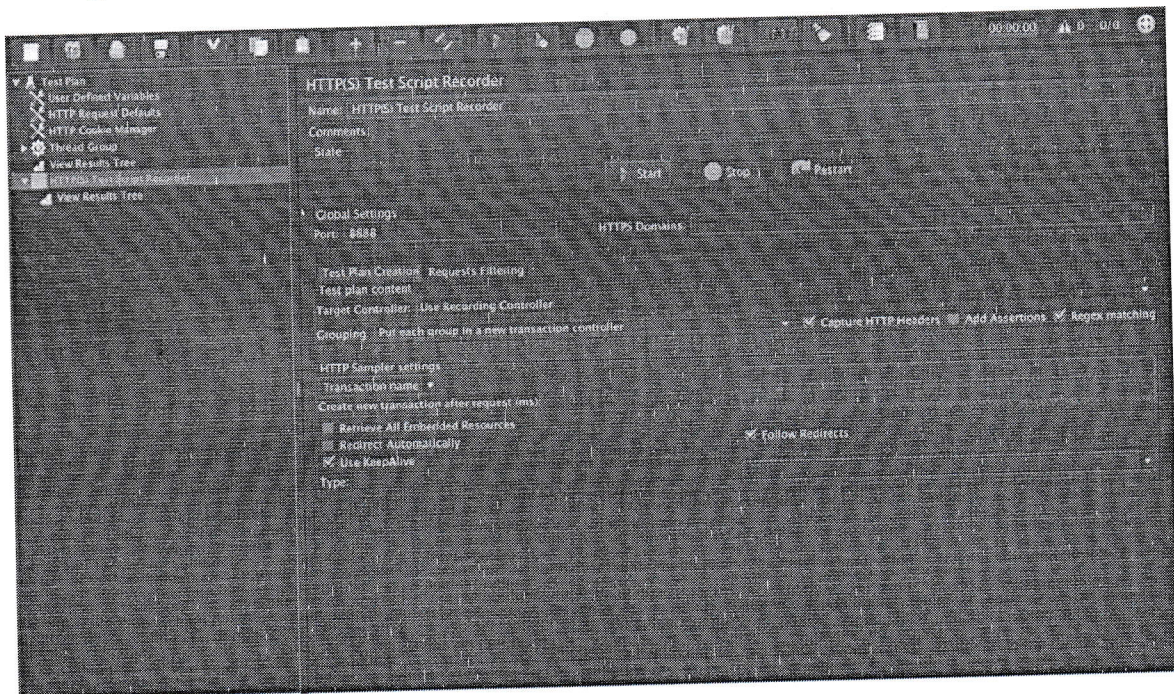


Fig: This is a basic interface of the J meter. By clicking the start button in the image, we can start recording all the requests sent and received by the browser.

To do that at first we have to record all the requests which we want to automate with 100 or more users later. After recording the requests, we have to make some changes to all the requests like, dynamic data, dynamic user id passwords and all the things which are not static, which will be different in all the requests. After changing everything we have to run the test scripts and have to make a report on the result we have got after testing.





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(A Branch Centre of Ramakrishna Mission, Belur Math, Howrah-711202)

## **Project Completion Certificate**

Date: 03/06/2020

This is to certify that **Sri Pritam Ghosh** (ROLL NO: CSPG/016/18) a student of Department of Computer Science, Ramakrishna Mission Residential College(Autonomous), has undergone a Project work from January 15, 2020 to May 30, 2020 titled "**Employee Management Portal**".

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**Employee Management Portal**

**PRITAM GHOSH- CSPG/016/18**

**BHASKAR DUTTA - CSPG/003/18**

**ANIRBAN SAHA - CSPG/032/18**

**RAJESH MAITI - CSPG/058/18**

**Department of Computer Science**

**2020**



EMPLOYEE MANAGEMENT PORTAL

# INTERNSHIP PROJECT



**RKMRC, NARENDRAPUR**

M.SC, COMPUTER SCIENCE DEPARTMENT



# CONTENT

| CHAPTER         | INDEX                             |                                | PAGE NO. |
|-----------------|-----------------------------------|--------------------------------|----------|
| PROJECT DETAILS |                                   |                                |          |
|                 | INTRODUCTION                      |                                |          |
|                 |                                   | INTRODUCTION                   |          |
| I               | PROJECT INITIATION AND SCHEDULING |                                |          |
|                 | 1.0                               | OVERVIEW                       |          |
|                 | 1.1                               | PURPOSE                        |          |
|                 | 1.2                               | PROJECT SCOPE                  |          |
|                 | 1.3                               | FEATURES                       |          |
| II              | ANAIYSIS                          |                                |          |
|                 | 2.1                               | STUDY OF THE PROPOSED SYSTEM   |          |
|                 | 2.2                               | PROBLEM DEFINATION             |          |
|                 | 2.3                               | SOLUTION STRATEGIES            |          |
|                 | 2.4                               | COST ESTIMATION AND SCHEDULING |          |
| III             | REQUIRMENT                        |                                |          |
|                 | 4.1                               | SOFTWARE REQUIRMENT            |          |
|                 | 4.2                               | HARDWORK REQUIRMENT            |          |
|                 | 4.3                               | SOFTWARE JUSTIFICATION         |          |
| IV              | DIAGRAM                           |                                |          |
|                 | 4.1                               | ERD                            |          |
|                 | 4.2                               | DFD                            |          |

## **INTRODUCTION**

The purpose of Employee Management Portal is automate the existing manual system by help of computerized equipments and full-fiedged computer software,fulfilling their requirement.So that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same.The required software and hardware are easily available and easy to work with.

Employee Management Portal as described above can lead to error free secure, reliable and fast management system.It can assist user to concentrate on their other activities rather to concentrate on the record keeping.Thus it will help organization in better utilization of resources.The organization can maintain computerized records without redundant entries.That means that one need not be distracted by information that is not relevant while being able to reach the information.

### **1.0 Overview:**

There are mainly three types of user.

#### **<1> Admin:-**

Admin has the main functionality. He has all rights. Admin can Insert, Update, or Delete a employee details. He has the responsibility that material which are requested by the user.

Admin has also responsibility of managing the notification list,employee details, user data list, post assign,task assign.

## <2> Employee:-

In Employee site Employee can view his details,all his tasks have to be perform and also update his working status with date on a specific project.

## <3> Visitor:-

Visitor can see the home page,view job notice and utility of this software.

- "Employee Management system" is design for registration the Employee for its data and information about Employee.
- First in our system Employee comes to website and fills the registration form of employee and view all his details.
- Administer Check all details of all employee.
- Administer also checked employee list by using filter and view all information of any employee.
- We provide their facility in our website once employee fill registration form then after Admin can only change its information from the update button administer also provide the checking of data and retrieve a data form specific employee.



## **1.1 PURPOSE :**

The main goal of this project is to make the record of employee's easier & quicker.

- It is situated for all level of peoples.
- It provides proper details about the entire employee & their posts.
- User friendly environment makes the data handling more easily.
- It easily provides an environment where the user can get information about all the employees / worker.

## **1.2 PROJECT SCOPE :**

- It is user friendly, can be accessed by any one.
- It has user id and password system to maintain privacy and security.
- It is very fast and accurate.
- No need of extra manual effort.
- Just need little knowledge to operate the system.
- Doesn't require any extra hardware device.

### **1.3 Features :**

- Better component design to get better performance at peak time
- Flexible service based architecture will be highly desirable for future extension.
- Professional look and feel
- Browser testing and support for IE
- Website is highly customizable and flexible enough to easily deploy without much effort
- Secured data driven role based access.

## **ANALYSIS**

### **2.1 Study of the proposed system :**

This system consists of different table which contains the record of employees & it is commented through .NET. In ASP.NET we have seen the information about the employee. You can also provide the different buttons like, add, delete, edit etc. which helps

you to edit any data & make your work easier.

## **2.2 Problem definition :**

In the old offline system, the main task of editing is not done easily & it will also take time. But in the proposed system the main assumptions are, the system should already contain all the hardware's & software's as well as the person who use this product should be familiar with window operating system.

## **2.3 Solution strategies :**

The main solution of the problem is to provide suitable & user-friendly environment to a user so that the user can maintain the detail of employee in a very easy manner.

## **2.4 Cost Estimation and Scheduling :**

Project estimation and scheduling were carried out together by the project leader as per the norms of the company. Some cost estimation was done at the early stage before the schedules were drawn up. Once the project was underway, estimates were updated. The factors involved in computing the total cost of a software project were Hardware & software cost, Maintenance



cost, Travel and training cost and Effort cost. Scheduling as well as estimating the effort required to develop the software system was done by the project leader in discussion with the Company officials.

### **3.1 Software requirements :**

- Operating System : Windows 7 or higher.
- Front End tool : Visual Studio
- Back End tool : Microsoft SQL Server
- Web Browser : Google Chrome, Firefox

### **3.2 Hardware Requirements :**

The configuration given below is the Hardware handled for the system development.

- Processor : Intel I3 or Above
- Primary Memory (RAM) : 8gb or Above
- Secondary Memory (Hard disk) : 500 GB or Above

### **3.3 Software Justification :**

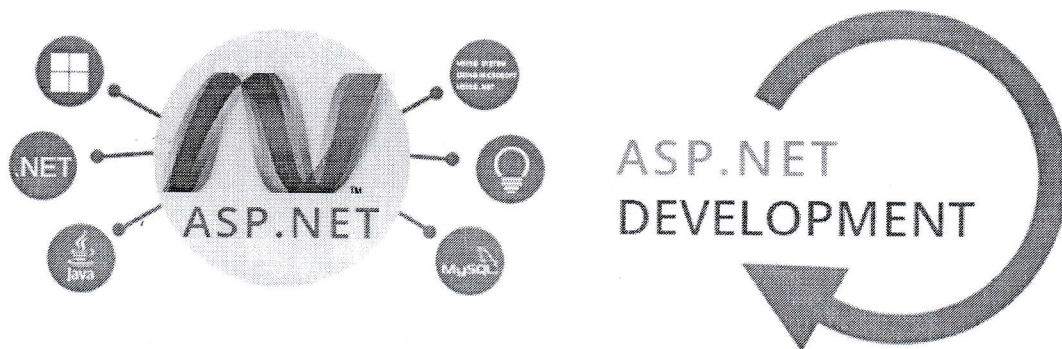
Operating System: As now a day's windows XP or higher are more common in market, we have designed this software to support all these OS.

## Front End:

### ASP.NET :

ASP.NET is a web development platform, which provides a programming model, a comprehensive software infrastructure and various services required to build up robust web applications for PC, as well as mobile devices.

ASP.NET works on top of the HTTP protocol, and uses the HTTP commands and policies to set a browser-to-server bilateral communication and cooperation.



ASP.NET is a part of Microsoft .Net platform. ASP.NET applications are compiled codes, written using the extensible and reusable components or objects present in .Net framework. These codes can use the entire hierarchy of classes in .Net framework.

The ASP.NET application codes can be written in any of the

following languages:

- C#
- Visual Basic.Net
- Jscript
- J#

ASP.NET is used to produce interactive, data-driven web applications over the internet. It consists of a large number of controls such as text boxes, buttons, and labels for assembling, configuring, and manipulating code to create HTML pages.

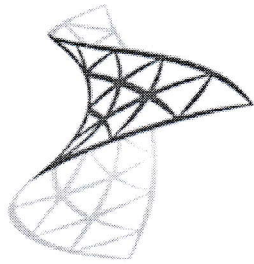
### **Back End:**

#### **Microsoft SQL Server Management Studio :**

SQL Server Management Studio is a workstation component\client tool that will be installed if we select workstation component in installation steps. This allows you to connect to and manage your SQL Server from a graphical interface instead of having to use the command line.

In order to connect to a remote instance of an SQL Server, you will need this or similar software. It is used by Administrators, Developers, Testers, etc.

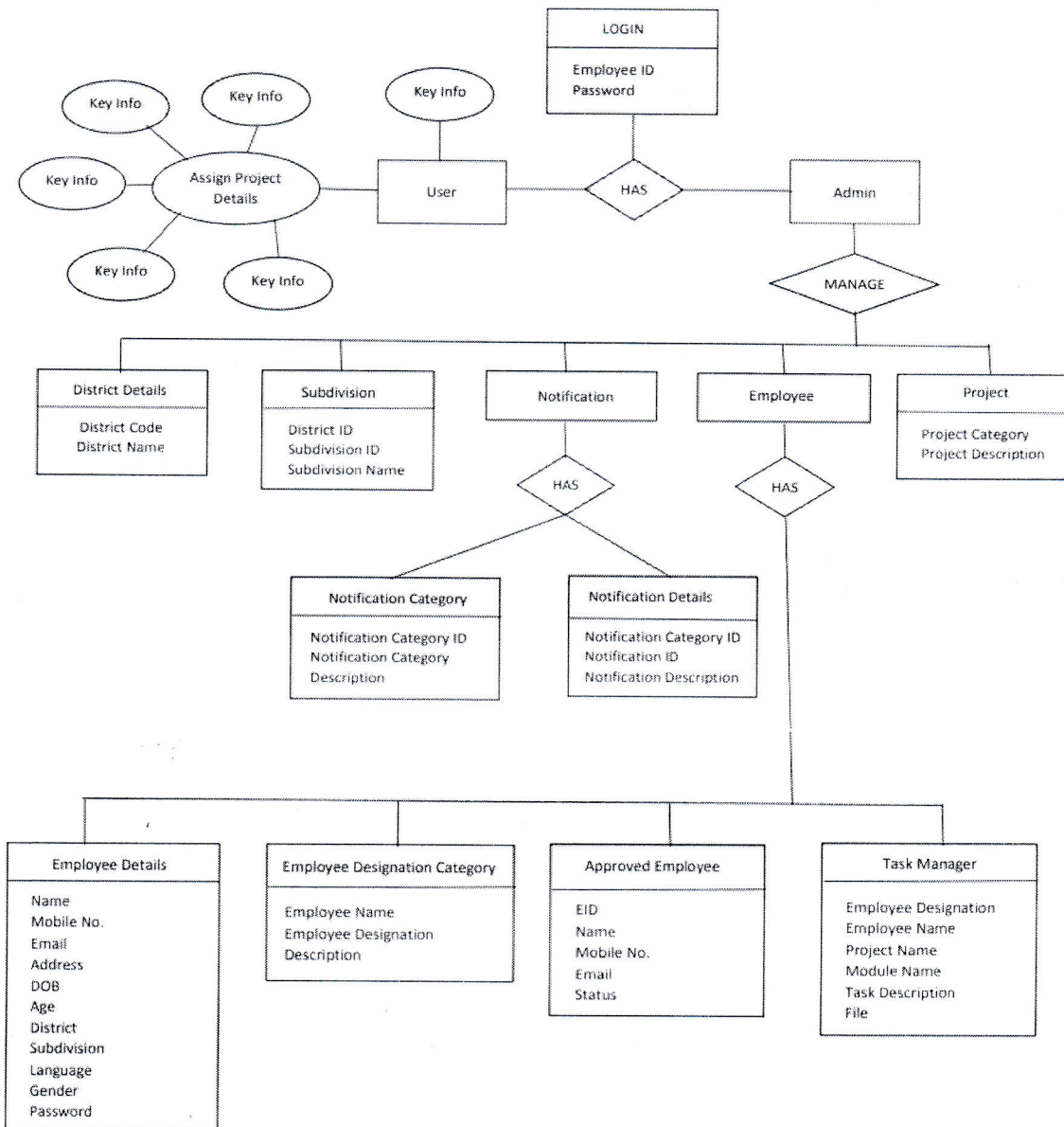




Microsoft

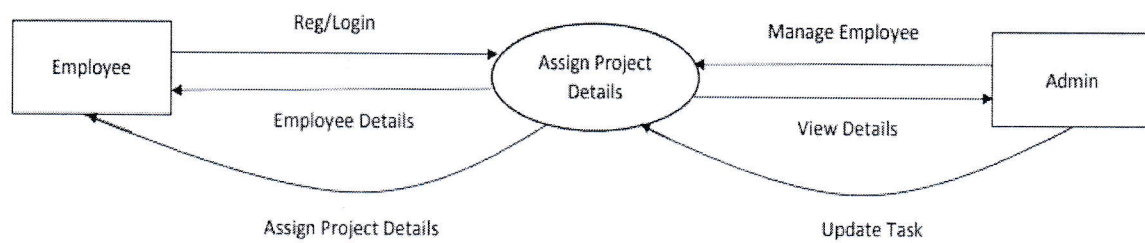
**SQL Server**

## 4.1 ERD :



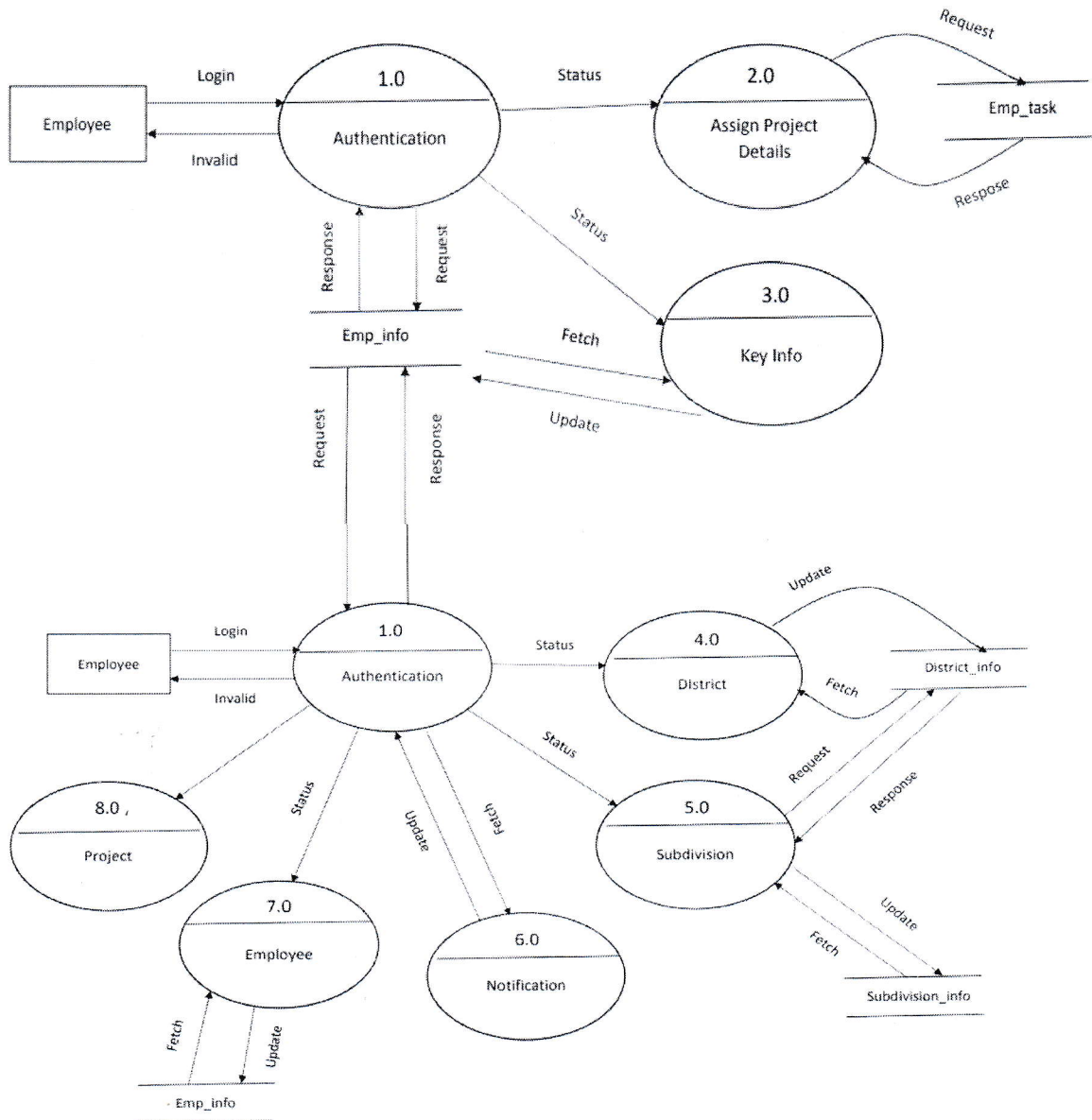
## 4.2 DFD:

### LEVEL – 0





## LEVEL - 1



## **CONCLUSION**

In this report, an Employee Management System development has been presented. It was emphasized on the basic steps, consequently taken during the project's development course as a particular attention was turned to the basic operative functions performed upon the data into the database. The report's content comprises the whole task solution, starting from the programming environments have been selected, going through the database, the application's analyze and construction, and finishing with the code-implementation shown separately.

Apparently, the role of such systems is basic and essential within each company that wants to keep a really good control and record concerning its personnel data, functionality and performance on all levels in its structure. Every organization, in nowadays, has the necessity of managing its staff on a really good level as the staff has definitely the greatest merit of building up a company as such as it is. The wellmanaged staff means giving the appropriate financial award-ness and all kind of benefits as such as they have been deserved.

## **Bibliography**

- During the Development of our system, we have taken the References Books which I would like to mention in this Section.

### **-: Books:-**

- The Complete Reference vb Programming
  - Asp.net 3.5

### **Links**

- [www.codeproject.com](http://www.codeproject.com)
- [www.wikipedia.com](http://www.wikipedia.com)
- [www.stackoverflow.com](http://www.stackoverflow.com)
- [www.docs.microsoft.com](http://www.docs.microsoft.com)