

A Mini Project Report on Reimbursement Service

T.E. - I.T Engineering

Submitted By

Rahul Kumar Yadav **20104093**

Mansi Viramgama **20104115**

Mayank Viramgama **20104119**

Under The Guidance Of

Prof. Yaminee Patil



DEPARTMENT OF INFORMATION TECHNOLOGY

A.P. SHAH INSTITUTE OF TECHNOLOGY

G.B. Road, Kasarvadavali, Thane (W), Mumbai-400615

UNIVERSITY OF MUMBAI

Academic year: 2022-23

CERTIFICATE

This to certify that the Mini Project report on Reimbursement has been submitted by **Rahul Kumar Yadav** (20104093), **Mansi Viramgama** (20104115) and **Mayank Viramgama** (20104119) who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-23** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

Prof. Yaminee Patil

Guide

Prof. Kiran Deshpande

Head Department of Information Technology

Dr. Uttam D.Kolekar

Principal

External Examiner(s)

- 1.
- 2.

Place: A.P. Shah Institute of Technology, Thane

Date:

ACKNOWLEDGEMENT

This project would not have come to fruition without the invaluable help of our guide **Prof. Yaminee Patil**. Expressing gratitude towards our HoD, **Prof. Kiran Deshpande**, and the Department of Information Technology for providing us with the opportunity as well as the support required to pursue this project. We would also like to thank our teacher Ms. Yaminee Patil who gave us her valuable suggestions and ideas when we were in need of them. We would also like to thank our peers for their helpful suggestions.

TABLE OF CONTENTS

1. Introduction.....	1
1.1.Purpose.....	1
1.2.Problem Statement.....	2
1.3.Objectives.....	2
1.4.Scope.....	3
2. Literature Review.....	4
3. Proposed System.....	7
3.1. Features and Functionality.....	7
4. Requirements Analysis.....	9
5. Project Design.....	10
5.1.Use Case diagram.....	10
5.2.DFD (Data Flow Diagram)	11
5.3.System Architecture	12
6. Technical specification.....	13
7. Project Scheduling.....	15
8. Implementation.....	16
9. Result and Discussion.....	17
10. Conclusion and Future Scope.....	18

References

Introduction

Reimbursement is when a organization pays back an employee, client, or other people for money they spent out of their pocket or for overpaid money. Some examples are getting money back for business costs, insurance premiums, and overpaid taxes. In our project Reimbursement is a student benefit through which a college pays for a pre-determined amount of continuing education credits or college coursework to be applied toward a degree. These programs are intended for employees looking to advance their education as it relates to their current career track, offering the chance to increase their industry knowledge and develop advanced skills.

1.1) Purpose

Reimbursement is compensation paid by an organization for out-of-pocket expenses incurred or overpayment made by an employee, customer, or another party. The Expense Reimbursement System (ERS) manages the process of reimbursing students and staff for expenses incurred while on completing interesting course. All students can log in, submit reimbursement requests, and view their past and pending requests.

A dedicated expense reimbursement software practically pays for itself. Alongside saving a ton of time, costs, and staff hours, it ensures management of reimbursement is ever compliant - with little to no manual intervention.

1.2) Problem Statement:

Difficulty keeping records of expenses spent on courses provided by the college. It became hectic to do a manual management for applying reimbursement for thousands of Students. Managing records of completion of certification of courses is also a hectic task. When employees incur expenses on behalf of your company, they'll occasionally need to spend their own money. It is both morally and legally required that the company reimburses them for these payments promptly and in full.

But this doesn't mean that employees get to claim reimbursement for every payment they make. To keep things fair and transparent, you need to set clear rules for what counts as a reimbursable expense.

1.3) Objectives

- To determine which course student or teacher can claim.
- To create a system for student's expense claim,
- To provide efficiency in managing records of reimbursement.
- To maintain a record of past reimbursement/compensation.
- To provide a proper visualization and graphical representation of monthly, yearly, and department-wise annual reports.

1.4) Scope

- Can be applied to any organization that wants to keep a record of their reimbursement.
- Can be helpful for organizations to get visual analyses of records by filtering them year-wise, department-wise, etc.
- Can be applied to any organization that wants to make the Reimbursement process easy to apply and keep track of their applied reimbursement etc.

Chp:2 Literature Review

Research and Analysis of Electronic Cash Payment System

(DOI: [10.1109/ICEIT.2010.5608359](https://doi.org/10.1109/ICEIT.2010.5608359))

A variety of on-line businesses are rapidly emerging over the Internet, which is believed to be one of the most efficient ways to provide all electronic services. An electronic and secure electronic cash ("e-cash" in short) system plays an important role to support these businesses safely as a trustful payment over the Internet. We describe the problems faced by previous e-cash system. Based on these problems, we will propose a new electronic cash model based on bilinear pairings. The security of the new system is under the computational Diffie-Hellman problem in the random oracle model. Analysis showed that the proposed model is superior to the related system in the area of electronic cash's security, anonymity, unforgeability, communication round, and computational cost.

Research on the Payment Service E-commerce Model Based on reputation mechanism (10.1109/ICCSE.2012.6295140).

This paper designs an improved E-commerce model and adds logistics provider to the traditional E-commerce model, puts emphasis on the mutual supervision of the third-party payment and logistics provider with reputation mechanism in order to reduce the service risks especially the payment risks in network transaction.

The core idea of trust mechanism based on reputation is that the trust mechanism assigns a trust value to any node name N in the E-commerce system according to its history transaction conditions and transaction behaviors evaluation of the other nodes for node N in order to support the decision whether the other nodes make a bargain with node N. The application of reputation mechanism in E-commerce can improve supervision mechanism for both sides of buyer and sellers especially the seller and provide a kind of suggestion and instruction information for the buyer to search and select provider of commodities or service. A number of scholars have pointed out that reputation is very important for any party to select partner in transaction especially in E-commerce environment.

Research on Online Payment Mode of E-commerce (10.1109/ICSESS.2010.5552440)

E-commerce is highlighted in the present Internet development, among which payment is its core issue. This paper, after analyzing the characteristics of online payment, gives a common online payment system model with emphasis on the discussion of the electronic credit card, electronic cash, and electronic check of three online payment modes a

Chp3: Proposed System

3.1) Features and Functions

- Can log in and Signup

To apply for reimbursement user, need to initially log in and if the user is not registered user one needs to Sign up by providing personal details such as name, email address, password, etc.

- Apply For Reimbursement

One can apply for the interested course he is willing to do.

- Overview of Past Records

Users can get information on past reimbursement at any time.

- Add Reimbursement.

Admin can make a new reimbursement entry.

- View Dashboard (User)

Here user can view applied reimbursement history, status and bank details.

- View Dashboard (Admin)

Here admin can see a number of reimbursement requests pending and approved.

- Upload Certificate

While filling particular reimbursement user can upload the completion certificate of the course or examination.

Chp4: Requirement Analysis

•Admin:

Add user to the portal:

- Firstly, users have to enroll themselves in the portal and which is approved by the admin whether the enrolled user is a valid user or not.
- Further admin will be able to add the users themselves.
- Keep records:

Admin will be able to keep record summaries on a CSV file or a downloadable file.

- Admin will also be able to get the graphical representation of all records
- Users:
 - Add new reimbursements:
 - Users will be able to add new reimbursements according to their needs and which will be further approved by the admin.
 - Reimbursement status:
 - Users will be able to see their reimbursement status.
 - previous reimbursement status.

Chapter 5: Project Design

5.1) User Case Diagram

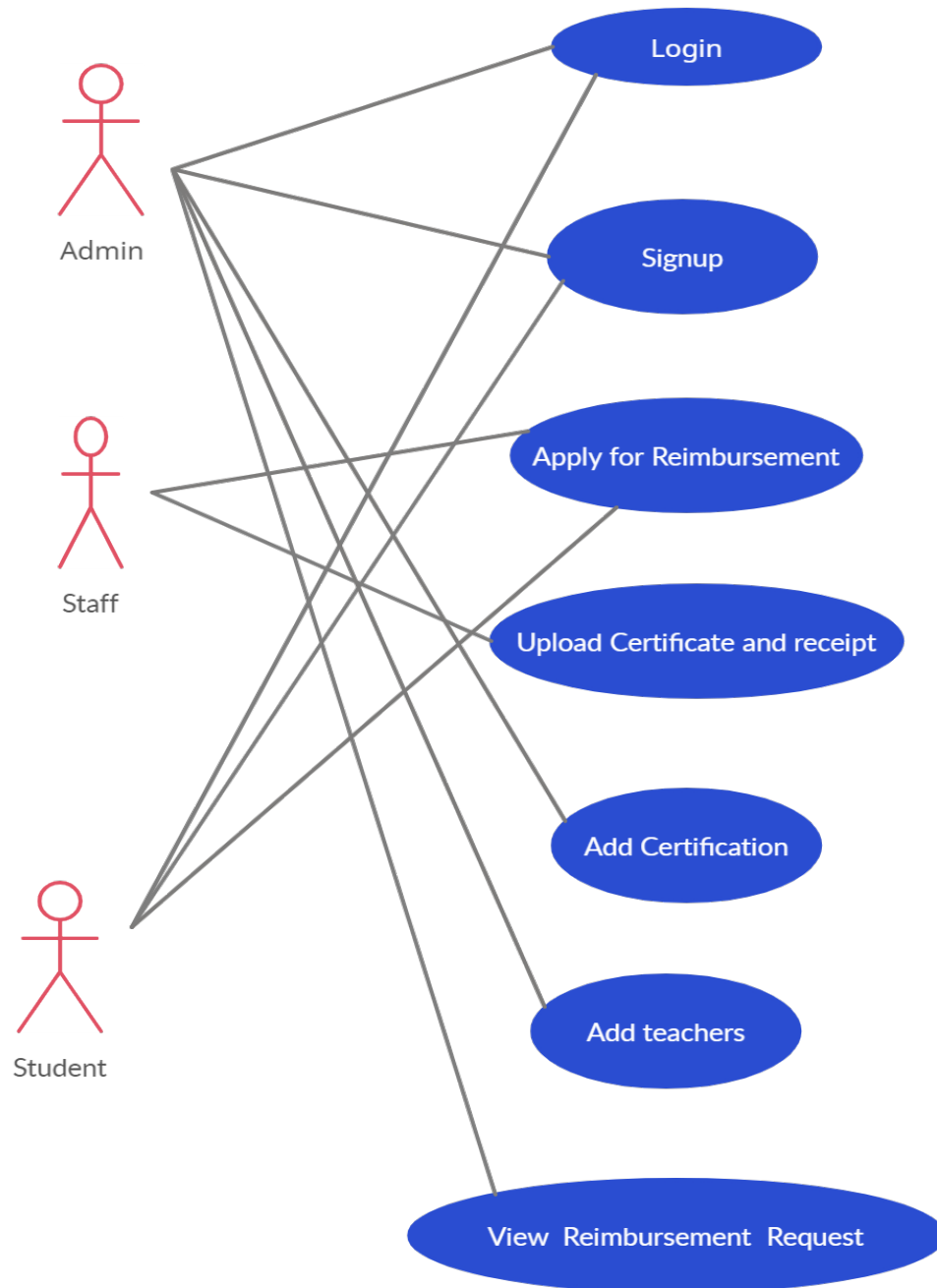


Fig: 5.1

5.2) DFD (Data Flow Diagram)

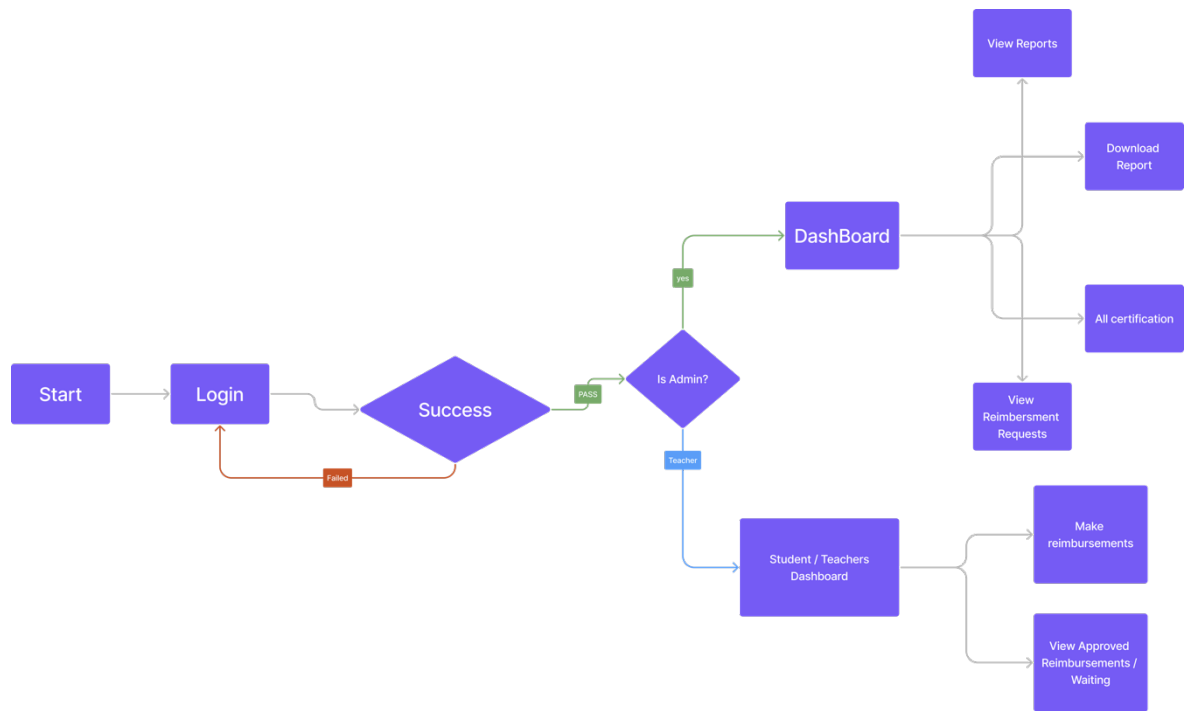


Fig: 5.2.1

5.3) System Architecture

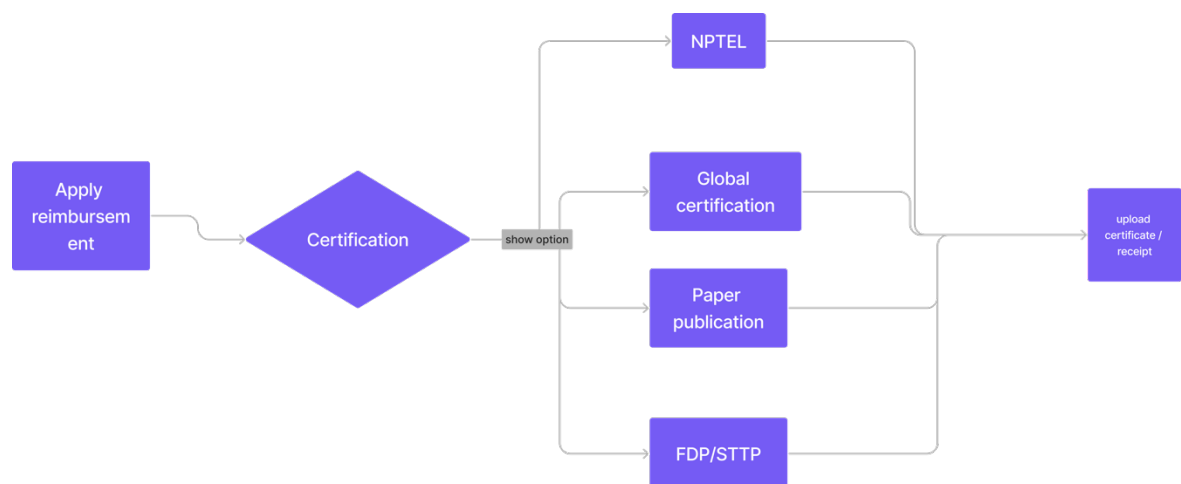


Fig: 5.3.1

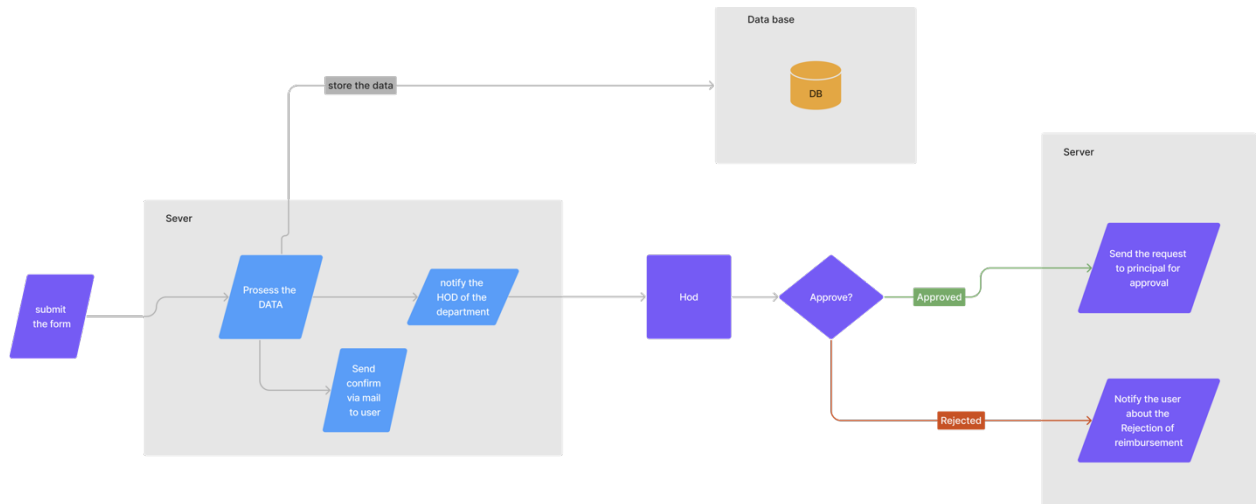


Fig: 5.3.2

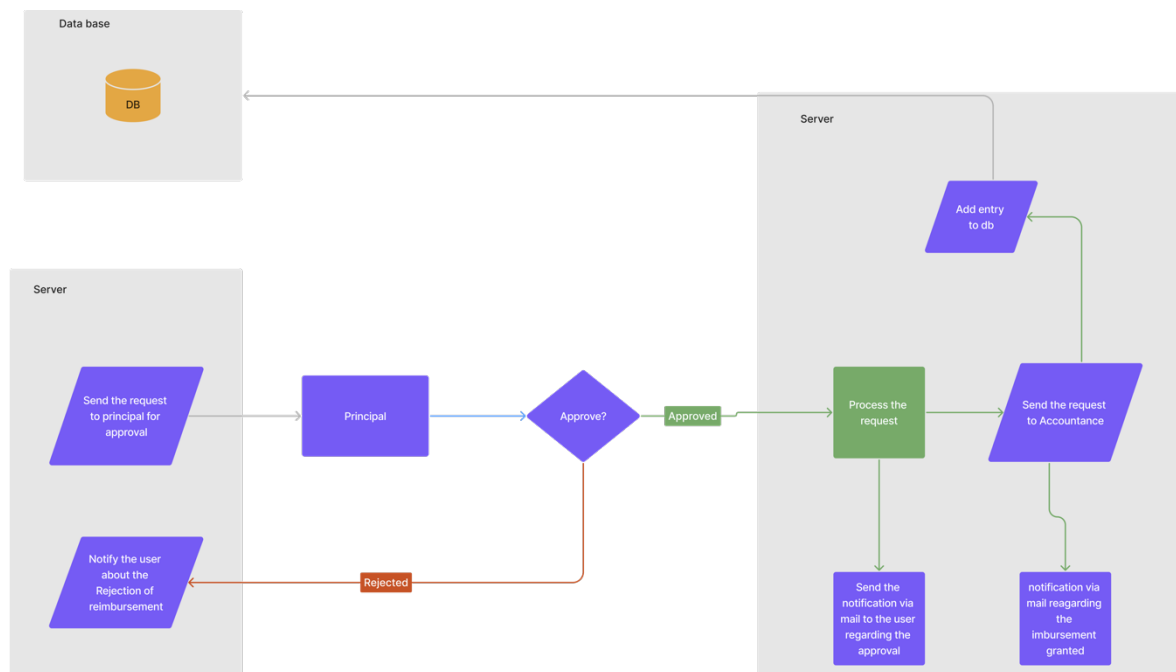


Fig: 5.3.3

Chapter 6: Technical Specification

- **Next-Js (Frontend):** Next.js is a framework that will help you to build your project with ease (production-ready). Next.js is also a full-stack framework that acts as a front-end framework that builds the interface of a website and also acts as a back-end framework that handles the rendering process and database management.
- **NodeJs (Backend):** It is used for server-side programming, and primarily deployed for non-blocking, event-driven servers, such as traditional websites and back-end API services, but was originally designed with real-time, push-based architectures in mind. Every browser has its own version of a JS engine, and node.js is built on Google Chrome's V8 JavaScript engine.
- **Material-Ui (CSS Framework):** Material UI is an open-source, front-end framework for React components. Material UI is based on Google's Material Design to provide a high-quality, digital experience while developing front-end graphics. Material Design focuses on providing bold and crisp designs – it builds textures by focusing on how the components cast shadows and reflect light.
- **Express-Js (To set Backend Rest API Framework):** Restful API is very popular and commonly used to create APIs for web-based applications. Express is a back-end web application framework of node js, and with the help of express, we can create an API very easily.
- **S3 Bucket (to store user certificates):** A bucket is a container for objects stored in Amazon S3. You can store any number of objects in a bucket and can have up to 100 buckets in your account. To request an increase, visit the Service Quotas Console. Every object is contained in a bucket.

Chapter 7: Project Scheduling

Sr. No	Group Member	Time duration	Work to be done
<u>1</u>	<u>Rahul Yadav</u>	1 st Week of July	Planning of Project workflow
		2 nd week of August to October	Started Setting up the Backend and Provide functionality to different URL pages and integrated API.
<u>2</u>	Mansi Viramgama	3 rd week of August to October	Started making different URLs for different pages and Report documentation work.
<u>3</u>	<u>Mayank Viramgama</u>	3 rd week of August to October	Started making different URL for different pages and Project Presentation.

Chapter 8: Implementation

```

_handleFile(req, file, cb) {
  console.log(req.user._id.toString());
  console.log(file.size);
  const upload = stream.upload({
    Bucket: "rahulsreimbursement",
    Key:
`docs/${req.user._id.toString()}_${file.originalname}`,

    file.stream.pipe(upload);

    upload.on("error", function (error) {
      console.log(error);
      cb(error);
    });

    upload.on(" part", function (details) {
      console.log(details);
    });
    upload.on("uploaded", function (details) {
      console.log(details);
      cb(null, { details: details });
    });
  }
}
```

Fig: 8.1 Code for uploading files to aws s3 bucket

```

if (!fs.existsSync(process.cwd() + "/compress/")) {
  fs.mkdir(process.cwd() + "/compress", (err) => {
    // => [Error: EPERM: operation not permitted, mkdir 'C:\'];
    console.log(err);
  });
}

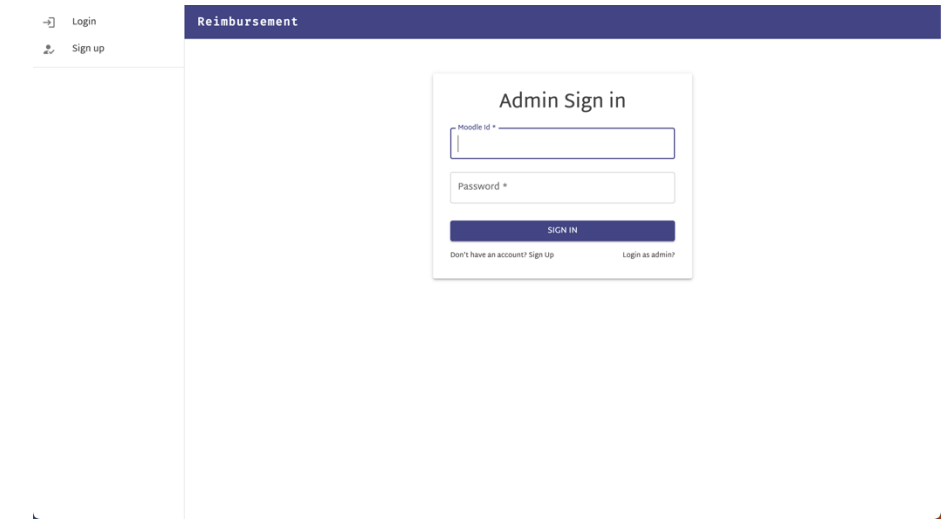
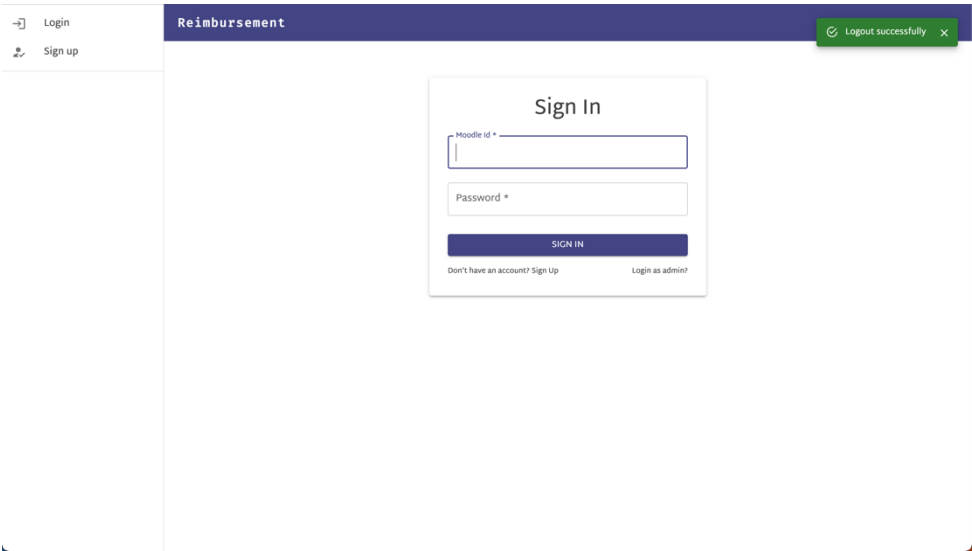
if (!fs.existsSync(process.cwd() + "/uploads/")) {
  fs.mkdir(process.cwd() + "/uploads", (err) => {
    // => [Error: EPERM: operation not permitted, mkdir 'C:\'];
    console.log(err);
  });
}

console.log(req.file);
const timeStamp = new Date().toISOString();
const tmp_path = req.file.path; // tmp/filename
const target_path = "uploads/" + req.file.originalname.replace(/\s/g, "");
const src = fs.createReadStream(tmp_path);
const dest = fs.createWriteStream(target_path);
src.pipe(dest);

const command =
  "gs -sDEVICE=pdfwrite -dNOPAUSE -dQUIET -dBATCH -dPDFSETTINGS=/screen -dCompatibilityLevel=1.4 -
sOutputFile=" +
  "compress/" +
  timeStamp +
  ".pdf " +
  "uploads/" +
  req.file.originalname.replace(/\s/g, "");
exec(command, (error, stdout, stderr) => {
  if (error) {
    console.log(error);
  }
  if (stderr) {
    console.log(stderr);
  }
  console.log(stdout);
  cleanupFunction("tmp");
  cleanupFunction("uploads");
  res.download("compress/" + timeStamp + ".pdf");
  cleanupFunction("compress");
  return;
});
```

Fig: 8.2 Code for compressing Files

Chapter 9: Result and Discussion



12345

Dashboard

Reset Password

Log-out

View Request

Add Users

Reimbursement

Reimbursement Request

OPEN REQUEST PAGE

Certificate Name	Apply At	Amount	Status	Account Number	IFSCode	Action
NPTEL	26/10/2022	1234	PENDING	1231234567	BAN1234	VIEW REQUEST
FTTP / STP	26/10/2022	2131	PENDING	1231234567	BAN1234	VIEW REQUEST
NPTEL	26/10/2022	12343	PENDING	1234567890	SBIN000123	VIEW REQUEST
NPTEL	29/10/2022	131	PENDING	1234567890	SBIN00001234	VIEW REQUEST
NPTEL	29/10/2022	3000	PENDING	1234567890	SBIN00001234	VIEW REQUEST
Paper Publication	29/10/2022	1234	PENDING	1231234567	BAN1234	VIEW REQUEST

Rows per page: 10 0-0 of 0

Summary

Reimbursement

Reimbursement Requests

EXPORT

Certificate Name	Apply At	Applied by	Moodle Id	Amount	Status	Account Ni
NPTEL	26/10/2022	Rahul	1234	1234	PENDING	1231234
FTTP / STP	26/10/2022	Rahul	1234	2131	PENDING	1231234
NPTEL	26/10/2022	Rahul 1	20104093	12343	PENDING	1234567
NPTEL	29/10/2022	Rahul 1	20104093	131	PENDING	1234567
NPTEL	29/10/2022	Rahul 1	20104093	3000	PENDING	1234567
Paper Publication	29/10/2022	Rahul 2	20104094	1234	PENDING	1231234

Rows per page: 10 0-0 of 0

12345

Dashboard

Reset Password

Log-out

View Request

Add Users

Reimbursement

Reimbursement details

certificate Name

NPTEL

Reimbursement Amount

1234

courseName

JAVA

academic_Year

First Half

courseStartDate

2022-10-13

courseEndDate

2022-10-13

examDate

2022-10-08

Class

Elite

first_name

Rahul

Account Number

1231234567

DOWNLOAD CERTIFICATE

APPROVE

EXPORT

Reimbursement details

Account Number

IFSCCode

Actions

67

BAN1234

VIEW REQUEST

67

BAN1234

VIEW REQUEST

90

SBIN000123

VIEW REQUEST

90

SBIN0001234

VIEW REQUEST

90

SBIN0001234

VIEW REQUEST

67

BAN1234

VIEW REQUEST

Rows per page: 10

0-0 of 0

<

>

Rahul

1234

Dashboard

Reset Password

Log-out

Apply new Request

Compress Pdf

Reimbursement

PENDING REQUEST


APPROVED REQUEST

ALL REQUEST


PENDING Requests


Certificate Name	Apply At	Amount	Status	Account Number	IFSCCode	Action
NPTEL	26/10/2022	1234	PENDING	1231234567	BAN1234	VIEW REQUEST
FTTP / STP	26/10/2022	2131	PENDING	1231234567	BAN1234	VIEW REQUEST


Rows per page: 10 0-0 of 0 < >





Rahul
1234

 Dashboard

 Reset Password

 Log-out

 Apply new Request

 Compress Pdf

Reimbursement

PENDING REQUEST


APPROVED REQUEST

ALL REQUEST


APPROVED Requests


Certificate Name	Apply At	Amount	Status	Account Number	IFSCCode	Action
NPTEL	26/10/2022	1234	Approved	1231234567	BAN1234	<button>VIEW REQUEST</button>


Rows per page: 10 0-0 of 0 < >





Rahul
1234

 Dashboard

 Reset Password

 Log-out

 Apply new Request

 Compress Pdf

Reimbursement

PENDING REQUEST

APPROVED REQUEST

ALL REQUEST

All Requests

Certificate Name	Apply At	Amount	Status	Account Number	IFSCCode	Action
NPTEL	26/10/2022	1234	Approved	1231234567	BAN1234	<button>VIEW REQUEST</button>
NPTEL	26/10/2022	1234	PENDING	1231234567	BAN1234	<button>VIEW REQUEST</button>
FTTP / STP	26/10/2022	2131	PENDING	1231234567	BAN1234	<button>VIEW REQUEST</button>

Rows per page: 10 0-0 of 0 < >

Rahul

1234

Dashboard

Reset Password

Log-out

Apply new Request

Compress Pdf

Reimbursement

PENDING REQUESTS

All Requests

Certificate Name
NPTEL
NPTEL
FTTP / STP

Reimbursement details

certificate Name

NPTEL

Reimbursement Amount

1234

courseName

JAVA

academic_Year

First Half

courseStartDate

2022-10-01

courseEndDate

2022-10-15

examDate

2022-10-13

Class

Elite

first_name

Rahul

Account Number

1231234567

DOWNLOAD CERTIFICATE

ALL REQUEST

Number	IFSCCode	Action
1234567	BAN1234	VIEW REQUEST
1234567	BAN1234	VIEW REQUEST
1234567	BAN1234	VIEW REQUEST

Rows per page: 10 0-0 of 0

Rahul

1234

Dashboard

Reset Password

Log-out

Apply new Request

Compress Pdf

Reimbursement

Apply for Reimbursement

Select Role

Student

Student Name *

Rahul

Email *

yadavrahul8141@yahoo.co

Select Certificate

NPTEL

Course Name *

JAVA

Academic Year

First Half

Duration

Course Start Date *

29/09/2022

Course End Date *

12/10/2022

Exam Date *

05/10/2022

Class Received(if any)

Elite

Reimbursement Amount *

1234

Account Number *

1231234567

IFSCCode *

BAN1234

Upload your Certificate

Choose file No file chosen

SUBMIT

Rahul
1234

Dashboard

Reset Password

Log-out

Apply new Request

Compress Pdf

Reimbursement

Compress Your PDF

Select your Certificate

Choose file

No file chosen

COMPRESS

Chapter 10: Conclusion and Future Scope

Our project is only a humble venture to satisfy the needs to manage their project work. Several user-friendly coding have also adopted. This package shall prove to be a powerful package in satisfying all the requirements of the school. The objective of software planning is to provide a frame work that enables the manger to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progress.

- A description of the background and context of the project and its relation to work
- already done in the area.
- Made statement of the aims and objectives of the project.
- The description of Purpose, Scope, and applicability.
- We define the problem on which we are working in the project.
- We describe the requirement Specifications of the system and the actions that
- can be done on these things.
- We understand the problem domain and produce a model of the system, which
- describes operations that can be performed on the system.
- We included features and operations in detail, including screen layouts.
- We designed user interface and security issues related to system.
- Finally, the system is implemented and tested according to test cases.

Chapter 11: Reference.

Google for problem solving

<http://www.javaworld.com/javaworld/jw-01-1998/jw-01-Credentialreview.html>

Database Programming with JDBC and Java by O'Reilly

Head First Java 2nd Edition

<http://www.jdbc-tutorial.com/>

Java and Software Design Concepts by Apress

<https://www.tutorialspoint.com/java/>

<http://www.javatpoint.com/java-tutorial>

<https://docs.oracle.com/javase/tutorial/>

<http://www.wampserver.com/en/>

<http://www.tutorialspoint.com/mysql/>

<http://d.apache.org/docs/2.0/misc/tutorials.html>