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# Implementation Document

## for

# Travel Allowances and Bill Reimbursement

Version 1.0

Course: CS253

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## Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1	Members of the Group	Initial version	20/03/22

# 1 Implementation Details

We have used **Django**, which is a web framework in **Python**. Below is a list of some of the most prominent advantages of using **Django**:

- **MVT architecture**: The MVT architecture is the main star of the game. It helps to work on different components parallelly which makes the integration of code easier.
- **Security**: Django provides a User Authentication feature that very safely manages user accounts and passwords and hence, is very important for the safety of the application.
- **Scalable**: Applications that are made with Django have the capacity to handle multiple users at a time and hence works efficiently in case of an increase in traffic.
- **Community Support**: Django's community is one of the most highly active ones and is trying to make Django more beginner-friendly. Also, its documentation is quite easy to understand, making Django very easy to use.

We have used **HTML** and **CSS** for the front-end part of the software. The advantages of using them are:

- HTML is very widely used, easy to learn and easy to use for programmers.
- Also, HTML is very lightweight and fast to load and is used in almost all websites, if not all.
- CSS makes the code less complex and reduces the efforts significantly and helps use a specific style for an element multiple times.
- CSS helps make spontaneous and consistent changes to an online page, making it easier for users to customize it.

We have used the **Bootstrap** CSS framework for making the website responsive and user-friendly. The main advantages of using it are:

- **Increased Development Speed**: Using Bootstrap helps complete the work in lesser time and also get good and responsive web pages.
- **Ease of Use**: Very easy-to-use open-source framework if you have a basic knowledge of HTML and CSS. It can easily customize and create responsive designs also saving time for the development.



## 2 Codebase

The link to the codebase can be found below:

<https://github.com/mohitg20/TA-Reimbursement-Project>

Django primarily employs the MVT (i.e. Model-View-Template) architecture. Hence the codebase can be conveniently navigated as compared to previously considered frameworks like Springboot(which is based in Java) and Nodejs. The HTML pages which will be rendered on visiting a particular page are kept in the 'templates' folder.

# TA-Reimbursement-Project

COURSE PROJECT NAME-: TA Reimbursement-Project

TA-Reimbursement-Project contains a source code folder named TA\_reimbursementProject, which comprises of:

1. home folder -: Which is the app of our project maintaining various files. Some of those containing primary files are -:

- (i) admin.py -: used to register various models of our project.
- (ii) models.py -: which maintains various models(class implementation) of our project.
- (iii) urls.py -: maintains various URLs of different pages.
- (iv) views.py -: used to store different attributes/information for storing in the database.  
Accessing models and different functionalities like password authentication, fetching data from database.
- (v) apps.py -: contains files created so as to include configuration for the app.
- (vi) forms.py -: used for user authentication.

2. TA\_reimbursementProject -: which is our Django project containing-:

- (i) settings.py which registers and maintains various settings and is also used for registering apps(home app) in the Django project.
- (ii) urls.py which contains URLs to various apps of our project.
- (iii) asgi.py and wsgi.py -: contains standard python source files

3. Templates -: which are our HTML source files. The major files used are-:

- (i) application -: which contains Application Form
- (ii) base -: which contains common header and footer (basic layout)
- (iii) baseportal -: this contains basic formulation for standard prompt and messages which appear confirming successful login etc.
- (iv) form -: which contains Claim Bill
- (v) index -: which is our main page(home page)

(vi) login -: This is our login page for logging already registered users along with the option for registering new users.

(vii) register -: which is our registration page for registering new users.

(viii) status -: This is the page for viewing the status of the user.

(ix) user\_profile -: this is a profile of the registered user.

(x) filledform -: displays the filled Claim Bill form  
and some other minor templates .

4. db.sqlite3 -: SQLITE3 File which is the standard database of Django framework.

5. manage.py -: Inbuilt python file containing the basic implementation of framework.

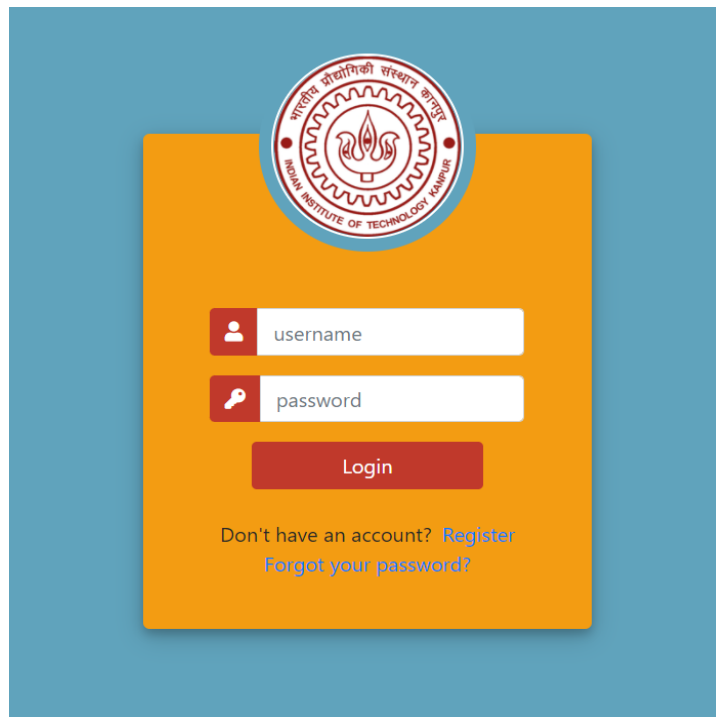
6. README.md : contains instructions to implement the code.

### 3 Completeness

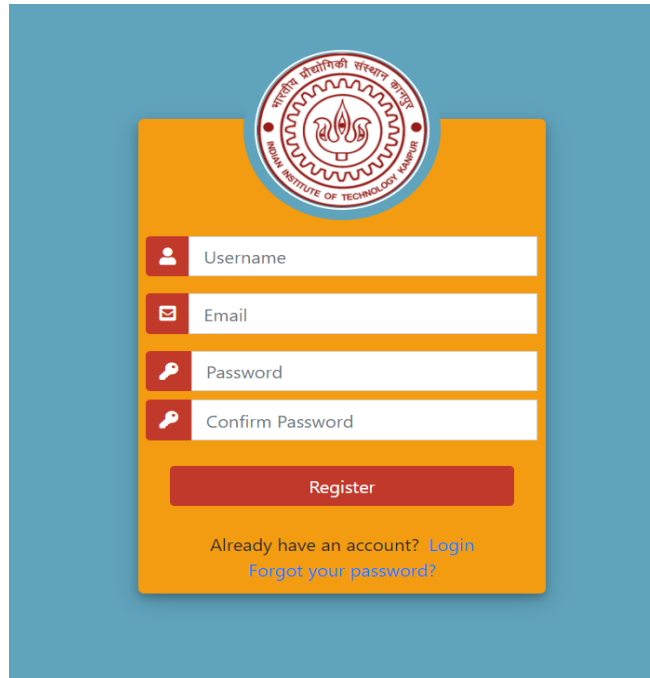
All the software requirements listed in the SRS have been met in the application prepared. The functional requirements stated in the SRS have been implemented as:

- **Application Portal:**

This portal is used to register and apply for travel bill. The first page rendered is the login page where a new user can register or an existing user can login using the Username and Password set at the time of Sign Up.



(Login Portal for existing user)

The image shows a registration form for a new user. At the top center is the logo of the Indian Institute of Technology (IIT) Kharagpur, which is a circular emblem with a lamp in the center and text in Hindi and English. Below the logo is a yellow rectangular box containing the registration fields. These fields are: 'Username' with a person icon, 'Email' with an envelope icon, 'Password' with a key icon, and 'Confirm Password' with a key icon. Below these fields is a red 'Register' button. At the bottom of the yellow box, there is a link that says 'Already have an account? Login' and another link that says 'Forgot your password?'. The entire form is set against a blue background.

(Sign Up portal for New User)

After logging into the portal, as mentioned in the SRS, the data will be fetched from the user to complete the profile of the user.

After login, the user can navigate through the website as shown below:

Home My Profile Application Form Claim Bill Application Status Logout

Welcome mehtask20@iitk.ac.in ! You are now logged in.

As mentioned in the SRS, the details are fetched from the user as shown when the profile tab of the navigation bar is opened:



## MY PROFILE

Name	<input type="text"/>	Email	<input type="text" value="mehtask20@iitk.ac.in"/>
Roll No./PF No.	<input type="text"/>	Designation	<input type="text"/>
Department	<input type="text"/>	Bank Name	<input type="text"/>
Type of Bank A/C	<input type="text" value="Select the type of Bank Account"/>	Bank A/C Number	<input type="text"/>
Bank IFSC Code	<input type="text"/>	Aadhar Number	<input type="text"/>
Mobile Number	<input type="text"/>		

☐ I guarantee that the above information is correct and to the best of my knowledge.

After fetching these details, the profile of the user is complete and now the user can proceed to make any reimbursement claims in the portal by clicking the “Application Form” tab in the navigation bar.

On clicking on the “Application Form” tab, the form for claiming the LTC Grant claims is shown which can be filled and the claim can be submitted for verification.

## Indian Institute of Technology, Kanpur

## Application for Grant of LTC

Block year  P.F. No. Basic Pay Rs. 

1. Name	<input type="text"/>
2. Designation	<input type="text"/>
3. Department/Section	<input type="text"/>
4. (a) Whether leave is required for availing L.T.C ?	<input type="text" value="Yes/No"/>
(b)(i) If so, duration of leave applied for	<input type="text" value="duration"/>
(b)(ii) Date of departure of family, if not availing for himself	<input type="text" value="date of departure"/>
(c) Nature of leave	<input type="text" value="nature"/>
(d) Purpose	<input type="text" value="Purpose"/>
5. (i) Whether L.T.C is applied for going to home town or elsewhere?	<input type="text" value="Home town/Elsewhere"/>
(ii) The place of visit	<input type="text" value="place of visit"/>
6. Address during leave	<input type="text" value="address"/>
7. Mode	<input type="text" value="Mode: Rail/Road/Air"/>
8. Details of family members who will avail L.T.C	

- 1.
- 2.
- 3.

Full Name	Age
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

9. Amount of advance required Rs.

(Application form for availing LTC Grant)

Now, if the user wants to apply for Travel Allowance Reimbursement, then the user has to access the "Claim Bills" tab.

Application Form For TA reimbursement:

## Indian Institute of Technology, Kanpur Travelling Allowance Bill

institute	project_number
<input type="text" value="Enter institute name"/>	<input type="text" value="Enter project_number"/>
Name	roll_number
<input type="text" value="Enter your name"/>	<input type="text" value="Enter your roll_number"/>
designation	department
<input type="text" value="designation"/>	<input type="text" value="Enter your department na"/>
pay_band	purpose
<input type="text" value="pay_band"/>	<input type="text" value="purpose of journey"/>

### Summary of the claim submitted

1. Total travel cost	<input type="text" value="Total Travel Cost"/>
2. Road Kms	<input type="text" value="Road in kms"/>
3. DA for the No. of days, hospitality availed	<input type="text"/>
4. DA for the No. of days, hospitality not availed	<input type="text"/>
5. other expenses	<input type="text" value="other Expenses"/>
6. Grand total	<input type="text" value="Grand Total"/>
7. Less Advance	<input type="text" value="Less Advance"/>
8. Net claim: Payable/Refundable	<input type="text" value="Net Claim"/>

Details of Family Members(in case of LTC or Home town concession)

Sl. No.	Name	Date of Birth	Age	Relationship
1.	<input type="text" value="Enter your name"/>	<input type="text" value="Enter Date of Birth"/>	<input type="text" value="Enter your age"/>	<input type="text" value="Relationship"/>
2.	<input type="text" value="Enter your name"/>	<input type="text" value="Enter Date of Birth"/>	<input type="text" value="Enter your age"/>	<input type="text" value="Relationship"/>
3.	<input type="text" value="Enter your name"/>	<input type="text" value="Enter Date of Birth"/>	<input type="text" value="Enter your age"/>	<input type="text" value="Relationship"/>
4.	<input type="text" value="Enter your name"/>	<input type="text" value="Enter Date of Birth"/>	<input type="text" value="Enter your age"/>	<input type="text" value="Relationship"/>
5.	<input type="text" value="Enter your name"/>	<input type="text" value="Enter Date of Birth"/>	<input type="text" value="Enter your age"/>	<input type="text" value="Relationship"/>

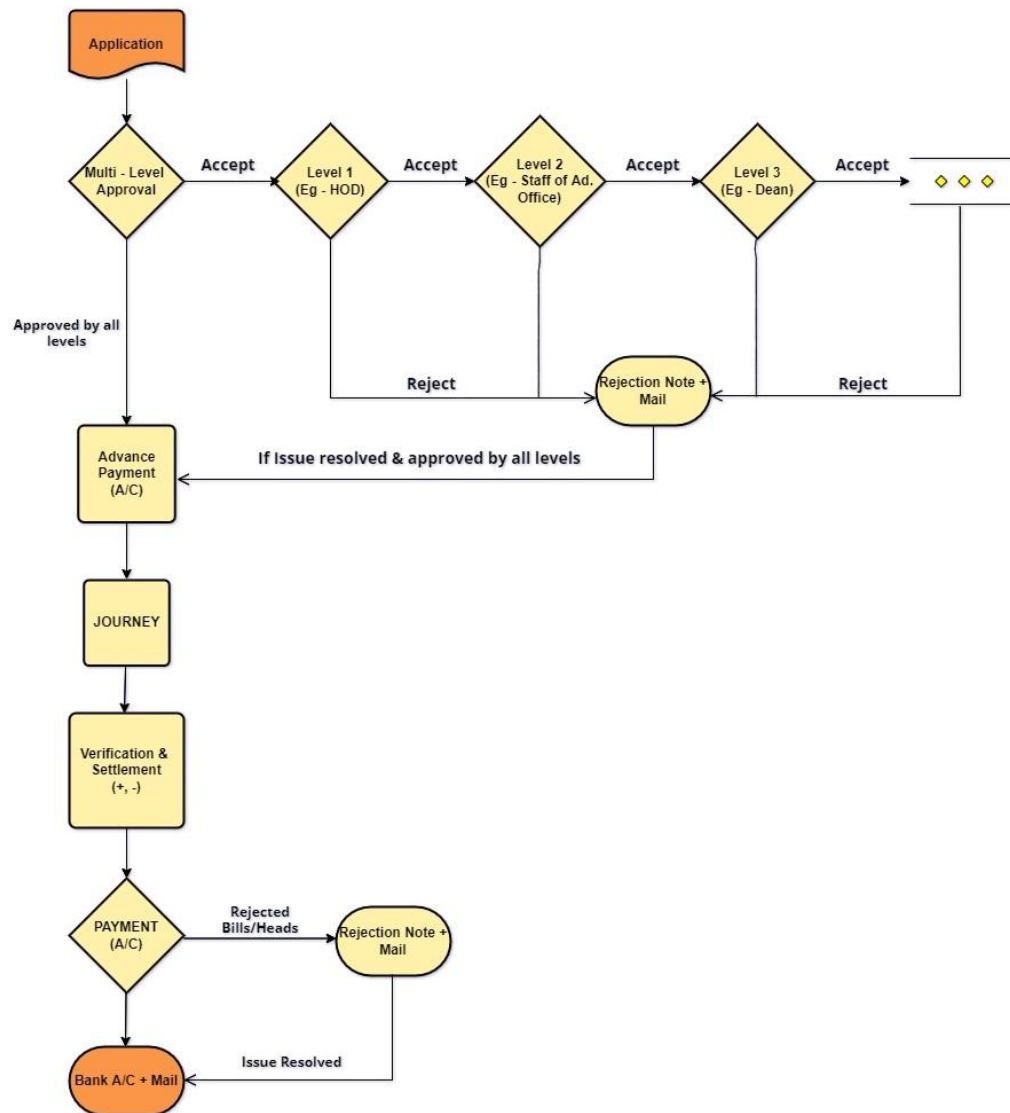
Details of Other Actual Expenses

Sl. No.	Particulars	Amount(Rs.)
1.	<input type="text"/>	<input type="text" value="Rs."/>
2.	<input type="text"/>	<input type="text" value="Rs."/>
3.	<input type="text"/>	<input type="text" value="Rs."/>
4.	<input type="text"/>	<input type="text" value="Rs."/>
5.	<input type="text"/>	<input type="text" value="Rs."/>

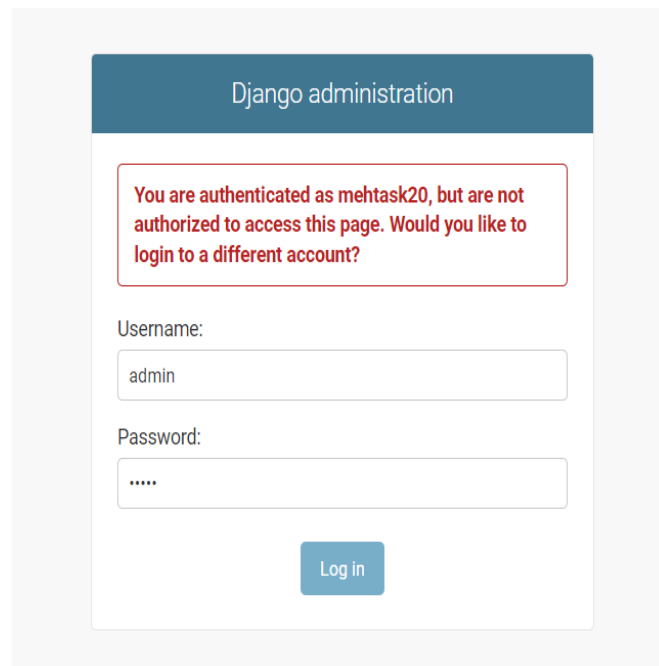
- **Approval of Application:**

Now, as mentioned in the SRS, the Approval/Rejection of the application by the user will be visible on clicking on the “Application Status” tab of the navigation bar.

The entire process can be summed up, as also shown in SRS document as:

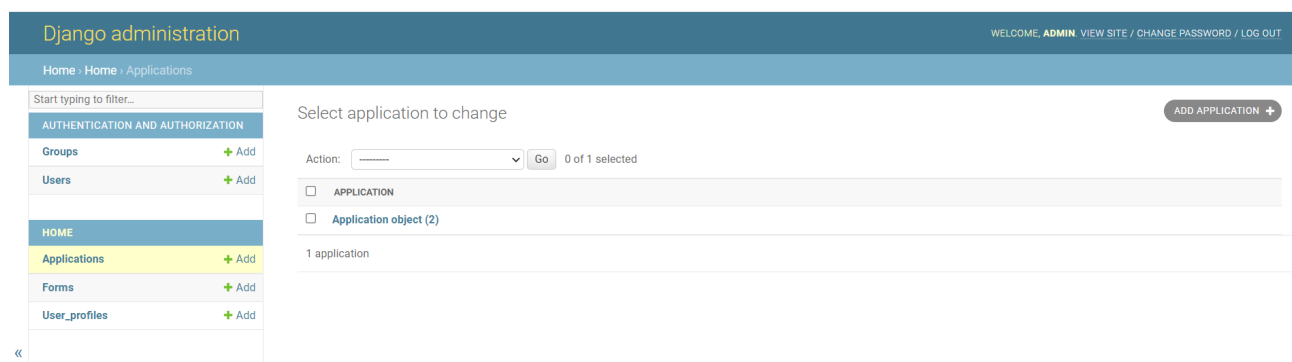


A separate login for the admin of the software who verifies the claim is also made who can see all the claim requests and verify them.



The image shows the Django administration login page. It has a dark blue header with the text "Django administration". Below the header, there is a red-bordered box containing a warning message: "You are authenticated as mehtask20, but are not authorized to access this page. Would you like to login to a different account?". Below this box, there are two input fields: "Username:" with the value "admin" and "Password:" with masked characters ".....". At the bottom, there is a blue "Log in" button.

(Admin login page)



The image shows the Django administration interface for clearing applications. The header is dark blue with "Django administration" on the left and "WELCOME, ADMIN VIEW SITE / CHANGE PASSWORD / LOG OUT" on the right. Below the header, there is a breadcrumb trail: "Home > Home > Applications". On the left, there is a sidebar with a search bar and a list of categories: "AUTHENTICATION AND AUTHORIZATION" (containing "Groups" and "Users"), "HOME" (containing "Applications", "Forms", and "User\_profiles"). The "Applications" category is highlighted. The main content area is titled "Select application to change" and has an "ADD APPLICATION +" button. Below this, there is an "Action:" dropdown menu and a "Go" button. The "0 of 1 selected" text is displayed. Below the "Action:" dropdown, there is a table with two columns: "APPLICATION" and "Application object (2)". The table has one row with the text "1 application".

(Admin interface for clearing applications)

### **Future Development Plan:**

The following things may be added to the software prepared in the future versions:

- **Multi-Stage Verification:** The user's application will be verified at multiple levels, as stated in the SRS, and then the approval/rejection of the claim application by the user will be done.
- **E-mail Triggering at various Steps:** At various stages of the application, the aim is to send an email to the user like at the time of registration, submission of claim request, acceptance of the claim, etc.
- Currently, pages like **My Profile**, **Application** and **Claim bills** cannot be edited once they are submitted. We plan to add the edit functionality in a later version.
- **Improving the Front-End:** We aim to improve the look of the software prepared so that it looks more attractive to the user as well as the admin.





## Appendix A - Group Log

### **02/03/2022: Zoom Meet with Nikhil Kumar Singh, Teaching Assistant**

We discussed the work division and some implementation details. He suggested we use the Django framework after looking at our SRS and Design documents. He felt that this would be the best suitable for our project.

### **11/03/2022: Zoom Meet with Nikhil Kumar Singh, Teaching Assistant**

We tried implementing some of the basic web pages (both front-end and back-end). We had some doubts regarding them and about the way further regarding the User\_Profile page and back-end access. He solved the issues and discussed further implementation.

### **20/03/2022: Zoom Meet with Nikhil Kumar Singh, Teaching Assistant**

We were done with most of the work. We had some doubts about fetching data from the database, which he was happy to clear out.

Details of other unofficial group meets aren't included as we met offline and completed the work together.