

A
PROJECT REPORT ON

INCOME - EXPENSE TRACKER

By

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CERTIFICATE

This is to certify that the practical / term work carried out in the subject of

System Design Practice and recorded in this journal is the

bonafide work of

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1)Abstract

Income - Expense Tracker is a software is a daily expense management system which is specially designed for non- salaried and salaried personnel for keeping track of their daily expenditure with easy and effective way through computerized system which tends to eliminate manual paper works.

It is a software that allows users to keep track of their own spending to ensure that they stick to a budget and don't go overboard. Such a system will incorporate several modules to provide an intuitive and user-friendly interface. Including the option of setting a daily budget or spending limit can also help users as then they can monitor how much they are spending on a daily basis. Such a tool will prove to be beneficial to all kinds of people, including home-makers who are on a strict budget and college going students who have to get by with monthly pocket-money! Analysing the inputs made to this tool will help users understand they spend the most money on so that they can devise ways what to cut back on spending on that particular item.

Objectives :

- Manage Records Of Income
- Manage Records Of Expense
- Show Statistics of Income & Expense

User Views:

- Super User(Django superuser)
- End User

1) Introduction

Income – Expense Tracker is basically a software that records the amount of income and expense for end user. The purpose of developing this software is to computerize the traditional way of tracking their daily expense.

Firstly, the registered user can successfully login to the system. This system is specifically developed for the non- salaried and salaried personnel offices where user can enter the records of the daily expenses and income. Information entered can further be edited or deleted permanently. All the records would be stored according to date and would be visible in history. Further user can view their statistics by graph according to month which he/she selected changes reflected in graph. Further they can download excel file of their added records.

Technologies/Tools used

Technologies:

- Django
- Bootstrap
- Chart Js
- HTML
- CSS

Tools:

- Git
- Visual studio code
- Chrome Browser

3)Software Requirement Specifications

1)Manage User

R.1.1: Profile

Description: This section includes information related to user's profile.

R.1.1.1: View profile

Description: This option shows the profile of the user. It displays their user id, username and email id.

Input: Click on the view profile option.

Output: Profile screen would be displayed.

R.1.1.2: Edit profile

Description: This option edits the profile of the User.

Input: Click on the edit profile button .

2) Manage registration/login

R.2.1: End User

R.2.1.1: Registration

Description: If User doesn't have any exiting account then they have to register themselves.

Input: User have to provide their name, email, and password.

Output: User would be redirected to login page.

R.2.1.2: Login

Description: If User already have an account then this option will be used to display home page by logging in.

Input: Operator have to give their username and password.

3) Manage Expenses

R.3.1: Add expense category

Description: This function will allow user to add the expense category name.

Input: Click on the Add category.

Output: Add category form would be displayed.

R.3.2: Add expense record

Description: This function will allow user to add the expense information.

Input: Click on the Add Expense.

Output: Add record form would be displayed.

R.3.3: View expenses record

Description: This function will show the list of all the expenses records along with date in tabular formate.

Input: Click on the Dashboard.

Output: List of all the entered expenses would be visible.

R.3.4: Edit expense record

Description: This function will let user to edit any expense record and save changes to the database.

Input: Click on buy edit record button.

Output: edit form would be visible where user can edit and save changes to database.

R.3.5 : Delete expense record

Description: This function will let operator to delete any expense record.

Input: Click on delete record button.

Output: Expense record would be deleted from the list.

R.3.6 : Search expense record

Description: This function will let user search all the recorded expense with respect to amount, category, date and description.

Input: Type text in the search bar.

Output: Matched expense records would be visible accordingly.

R.3.7 : View expense summary

Description: This function will let user to view history of all the entered expenses in different types of charts based on months we selected.

Input: Click on Expense summary button from sidebar.

Output: Expenses records summary would be visible.

R.3.8: Export expense

Description: This function will let user download all expenses which recorded in database in excel sheet on their system.

Input: Click on delete record button.

Output: Logged in user's expense records would be downloaded.

4) Manage Income

R.4.1: Add Income source

Description: This function will allow user to add the income source.

Input: Click on the Add source.

Output: Add source form would be displayed

R.4.2: Add Income record

Description: This function will allow user to add the income information.

Input: Click on the Add Income.

Output: Add record form would be displayed.

R.4.3 : View income record

Description: This function will show the list of all the income records along with date in tabular formate.

Input: Click on the Dashboard.

Output: List of all the entered income would be visible.

R.4.4: Edit income record

Description: This function will let user to edit any income record and save changes to the database.

Input: Click on buy edit record button.

Output: edit form would be visible where user can edit and save changes to database.

R.4.5: Delete income record

Description: This function will let operator to delete any income record.

Input: Click on delete record button.

Output: Income record would be deleted from the list.

R.4.6 : Search income

Description: This function will let user search all the recorded income with respect to amount, category, date and description.

Input: Type text in the search bar.

Output: Matched income records would be visible accordingly.

R.4.7 : View income summary

Description: This function will let user to view history of all the entered income in different types of charts based on months we selected.

Input: Click on Income summary button from sidebar.

Output: Income records summary would be visible.

R.4.8 : Export income

Description: This function will let user download all income which recorded in database in excel sheet on their system.

Input: Click on delete record button.

Output: Logged in user's income records would be downloaded.

5)Logout user

R.5.1: logout

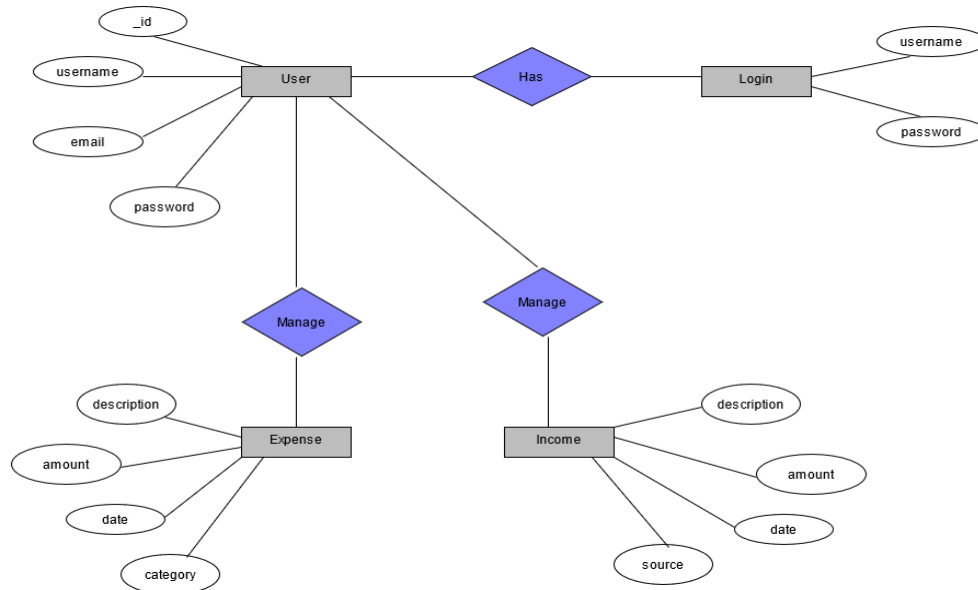
Description: Operator can logout after completion of task. All the entered records would not be affected due to logout.

Input: Click on logout option in side bar.

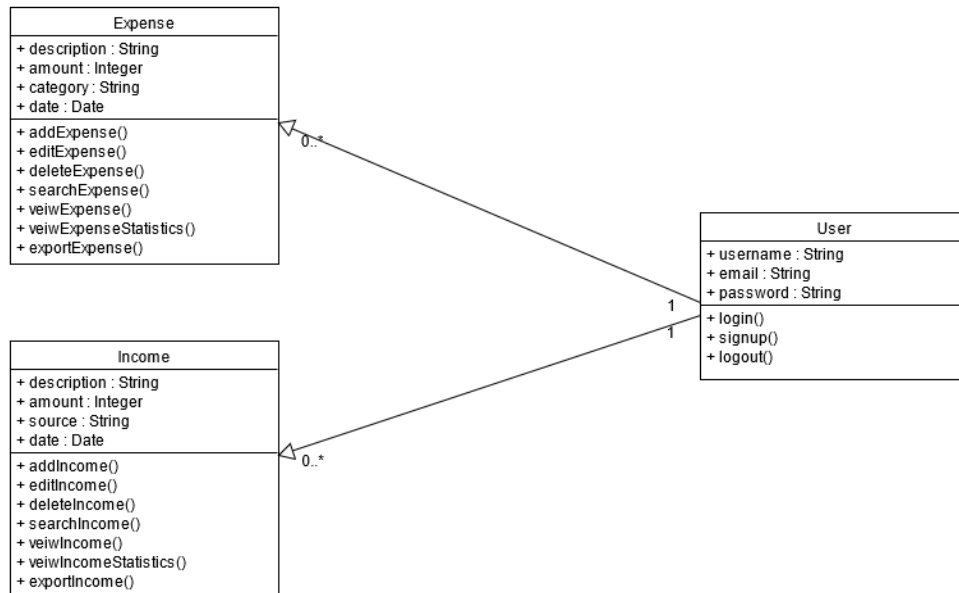
Output: Operator would be redirected to login page again.

4) Design

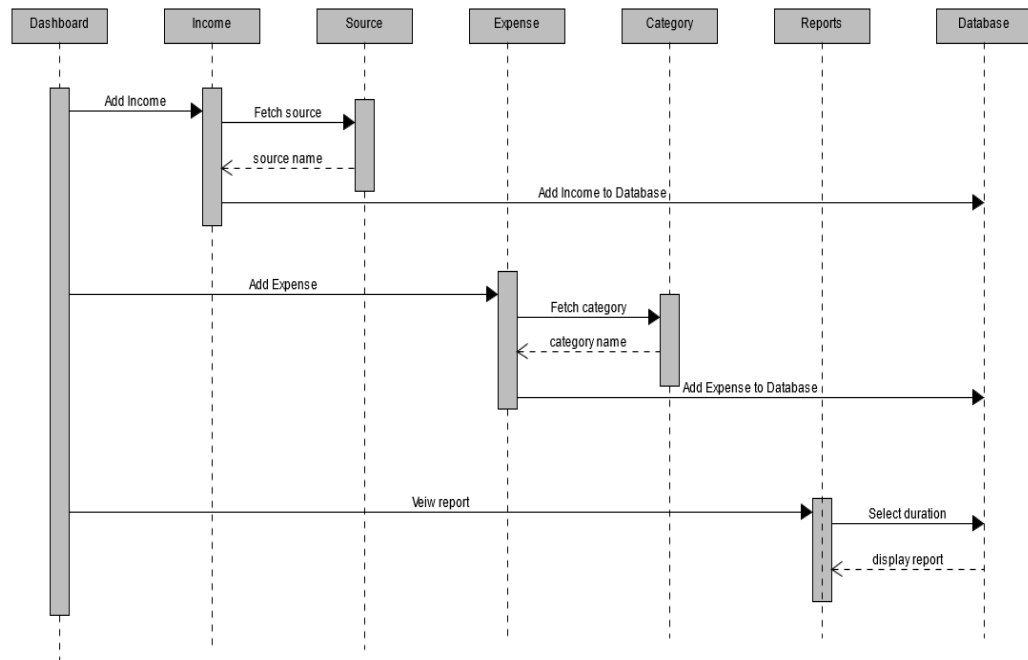
i. E-R diagram



ii. Class diagram



iii. Sequence diagram



iv. Data Dictionary

Users							
Sr No.	Field name	Data type	Required	Unique	PK/FK	Referred table	Description
1	_id	Int32	yes	yes	yes	-	Autoincrement
2	name	String	yes	yes	no	-	-
3	email	String	yes	no	no	-	-
4	password	String	yes	no	no	-	-

Category							
SrNo.	Field name	Data type	Required	Unique	PK/FK	Referred table	Description
1	name	String	yes	yes	no	-	-

Expense							
Sr No.	Field name	Data type	Required	Unique	PK/FK	Referred table	Description
1	_id	Int32	yes	yes	yes	-	Autoincrement
2	amount	Int32	yes	yes	no	-	-
3	description	String	yes	no	no	-	-
4	category	String	yes	no	yes	Category	-
5	date	Date	yes	no	no	-	-

Source							
Sr No.	Field name	Data type	Required	Unique	PK/FK	Referred table	Description
1	name	String	yes	yes	no	-	-

Income							
Sr No.	Field name	Data type	Required	Unique	PK/FK	Referred table	Description
1	_id	Int32	yes	yes	yes	-	Autoincrement
2	amount	Int32	yes	yes	no	-	-
3	description	String	yes	no	no	-	-
4	source	String	yes	no	yes	Source	-
5	date	Date	yes	no	no	-	-

5)Implementation Details

a).Modules

Login-Registration

This module is the base for authentication authorization to ensure the security aspect of the user.

It consist of all the login and registration functionality. User can login to the system if account already exist. User can register with unique username to create an account.

User is supposed to provide correct credentials to successfully login to the system.

User can logout from the system whenever he/she wants. This functions would not delete the activities performed by user.

Expense Records

This module is basically used in entering the record of the expense. Once we enter the information and click on add record the following information would be added to the database.

User can edit the information of expense by clicking on the edit button. All the updated fields will be updated to the database.

User can delete the record of any particular expense by clicking on the delete button. That particular record would be deleted from the list of the expense.

User can search the expense from the list with respect to either amount, description, category date.

User can view statistics of the expense based on selected date by all types of graphs(Pie ,Bar ,Line, Doughnut).

User can also export records of all expense in excel
Formate in their system by clicking on export CSV
Button.

Income Records

This module is basically used in entering the record of their income. Once we enter the information and click on add record the following information would be added to the database.

User can edit the information of income by clicking on the edit button. All the updated fields will be updated to the database.

User can delete the record of any particular income by clicking on the delete button. That particular record would be deleted from the list of the income.

User can search the income from the list with respect to either amount, description, source or date.

User can view statistics of the income based on selected date by all types of graphs(Pie ,Bar ,Line, Doughnut).

User can also export records of all income in excel
Format in their system by clicking on Export CSV
Button.

b).Major functionalities

Login:

```
class LoginView(View):
    def get(self,request):
        return render(request,'authentication/login.html')

    def post(self,request):
        username=request.POST['username']
        password=request.POST['password']

        if username and password:
            user=auth.authenticate(username=username,password=password)

            if user:
                if user.is_active:
                    auth.login(request,user)
                    messages.success(request,'welcome, '+
                    | | | | user.username+' You are now logged in')
                    return redirect('expenses')

                    messages.error(request,'Account is not active,please check your email')
                    return render(request,'authentication/login.html')

                messages.error(request,'Invalid credentials,Try again')
                return render(request,'authentication/login.html')

            messages.error(request,'Please fill all feilds')
            return render(request,'authentication/login.html')
```

Logout:

```
class LogoutView(View):
    def post(self,request):
        auth.logout(request)
        messages.success(request,'You have been logged out')
        return redirect('login')
```

Registration:

```
class RegistrationView(View):
    def get(self, request):
        return render(request, 'authentication/register.html')
    def post(self, request):
        username=request.POST['username']
        email=request.POST['email']
        password=request.POST['password']

        context={
            'fieldValues' : request.POST
        }

        if not User.objects.filter(username=username).exists():

            if len(password)<6:
                messages.error(request, 'Password is too short')
                return render(request, 'authentication/register.html', context)

            user=User.objects.create_user(username=username, email=email)
            user.set_password(password)
            user.is_active= False
            user.save()
            uidb64=urllibsafe_base64_encode(force_bytes(user.pk))
            domain=get_current_site(request).domain
            link= reverse('activate', kwargs={'uidb64':uidb64, 'token':account_activation_token.make_token(user)})
            activate_url='http://'+domain+link
            email_subject = 'Activate your account'
            email_body = 'Hi '+user.username+' | please use this link to verify your account\n' + activate_url

            email = EmailMessage(
                email_subject,
                email_body,
                'noreply@semycolon.com',
                [email],
            )
            email.send(fail_silently=False)

            messages.success(request, 'Account successfully created')
            return render(request, 'authentication/register.html')
        return render(request, 'authentication/register.html')
```

Search Expense:

```
@login_required(login_url='authentication/login')
def search_expenses(request):
    amount=models.FloatField()
    date=models.DateField(default=now)
    description=models.TextField()
    owner=models.ForeignKey(to=User, on_delete=models.CASCADE)
    category=models.CharField(max_length=266)

    if request.method=='POST':
        search_str=json.loads(request.body).get('searchText')

        expenses=Expense.objects.filter(amount__startswith=search_str, owner=request.user) | Expense.objects.filter(
            date__startswith=search_str, owner=request.user) | Expense.objects.filter(
            description__icontains=search_str, owner=request.user) | Expense.objects.filter(
            category__icontains=search_str, owner=request.user)

        data=expenses.values()
        return JsonResponse(list(data), safe=False)
```

Profile-Edit:

```
def profile_edit(request,id):
    user=User.objects.get(pk=id)

    context={
        'user':user,
        'values':user
    }
    if request.method=='GET':
        return render(request,'authentication/edit-profile.html',context)

    if request.method=='POST':
        username = request.POST['username']

        if not username:
            messages.error(request,'username is required')
            return render(request, 'authentication/edit-profile.html',context)

        email = request.POST['email']
        Id = request.POST['id']

        if not Id:
            messages.error(request,'Id is required')
            return render(request, 'authentication/edit-profile.html',context)

        if not email:
            messages.error(request,'Email is required')
            return render(request, 'authentication/edit-profile.html',context)

        user.owner=request.user
        user.username=username
        user.email=email
        user.id=Id

        user.save()
        messages.success(request,'Profile updated successfully')
        return redirect('profile')

    messages.info(request,'Handling post form')
    return render(request,'authentication/edit-profile.html',context)
```

Delete Expenes:

```
@login_required(login_url='authentication/login')
def delete_expense(request,id):
    expense=Expense.objects.get(pk=id)
    expense.delete()
    messages.success(request,'Expense removed')
    return redirect('expenses')
```

Add Expense:

```
@login_required(login_url='authentication/login')
def add_expense(request):
    categories=Category.objects.all()

    context={
        'categories':categories,
        'values':request.POST
    }
    if request.method == 'GET':
        return render(request, 'expenses/add_expense.html',context)

    if request.method == 'POST':
        amount = request.POST['amount']

        if not amount:
            messages.error(request,'Amount is required')
            return render(request, 'expenses/add_expense.html',context)

        description = request.POST['description']
        date = request.POST['expense_date']
        category = request.POST['category']

        if not description:
            messages.error(request,'Description is required')
            return render(request, 'expenses/add_expense.html',context)

        Expense.objects.create(owner=request.user,amount=amount,description=description,date=date,category=category)
        messages.success(request,'Expense saved successfully')
        return redirect('expenses')
```

Edit Expense :

```
@login_required(login_url='authentication/login')
def expense_edit(request,id):
    expense=Expense.objects.get(pk=id)
    categories=Category.objects.all()

    context={
        'expense':expense,
        'values':expense,
        'categories':categories
    }
    if request.method=='GET':
        return render(request, 'expenses/edit-expense.html',context)

    if request.method=='POST':
        amount = request.POST['amount']

        if not amount:
            messages.error(request,'Amount is required')
            return render(request, 'expenses/edit-expense.html',context)

        description = request.POST['description']
        date = request.POST['expense_date']
        category = request.POST['category']

        if not description:
            messages.error(request,'Description is required')
            return render(request, 'expenses/edit-expense.html',context)

        expense.owner=request.user
        expense.amount=amount
        expense.description=description
        expense.date=date
        expense.category=category

        expense.save()
        messages.success(request,'Expense updated successfully')
        return redirect('expenses')

    messages.info(request,'Handling post form')
    return render(request, 'expenses/edit-expense.html',context)
```

Expense-Report:

```
def expense_one_category_summary(request):
    if request.method == 'POST':
        categoryv = json.loads(request.body).get('categoryv')
        vmmonth = json.loads(request.body).get('month')
        todays_date= datetime.date.today()
        six_months_ago=todays_date-datetime.timedelta(days=30*int(vmmonth))
        expenses=Expense.objects.filter(owner=request.user,category=categoryv,
        date__gte=six_months_ago, date__lte=todays_date)
        finalrep={}
        z={}
        keyList = [ 'January','February','March','April','May','June','July','August','September','October','November','December']
        for i in keyList:
            finalrep[i] = 0.0

        def get_category(expense):
            return expense.category
        def get_date(expense):
            return expense.date

        date_list = list(set(map(get_date,expenses)))

        for x in expenses:
            temp = x.date.strftime("%B")
            finalrep[temp] += x.amount

        return JsonResponse({'expense_category_data':finalrep},safe=False)
```

Js file of Income Chart:

```
const getCharData = () => {
    console.log("fetching ");
    fetch("/income/income_source_summary")
        .then((res) => res.json())
        .then((results) => {
            console.log("results: ", results);
            const source_data = results.income_source_data;
            const [labels, data] = [
                Object.keys(source_data),
                Object.values(source_data),
            ];
            renderchart(data, labels, graphval);
        });
};

document.onload = getCharData();
```

Export-Income:

```
def export_income_excel(request):
    response= HttpResponseRedirect(content_type='application/ms-excel')
    response['Content-Disposition']='attachment; filename=Income'+ str(datetime.datetime.now()) +'.xls'

    wb=xlwt.Workbook(encoding='utf-8')
    ws=wb.add_sheet('Income')
    row_num=0
    font_style=xlwt.XFStyle()
    font_style.font.bold=True

    columns=['Amount','Description','Source','Date']

    for col_num in range(len(columns)):
        ws.write(row_num,col_num,columns[col_num],font_style)

    font_style=xlwt.XFStyle()

    rows=UserIncome.objects.filter(owner=request.user).values_list('amount','description','source','date')

    for row in rows:
        row_num+=1

        for col_num in range(len(row)):
            ws.write(row_num,col_num,str(row[col_num]),font_style)

    wb.save(response)

    return response
```

5) Testing

Testing method: Manual testing

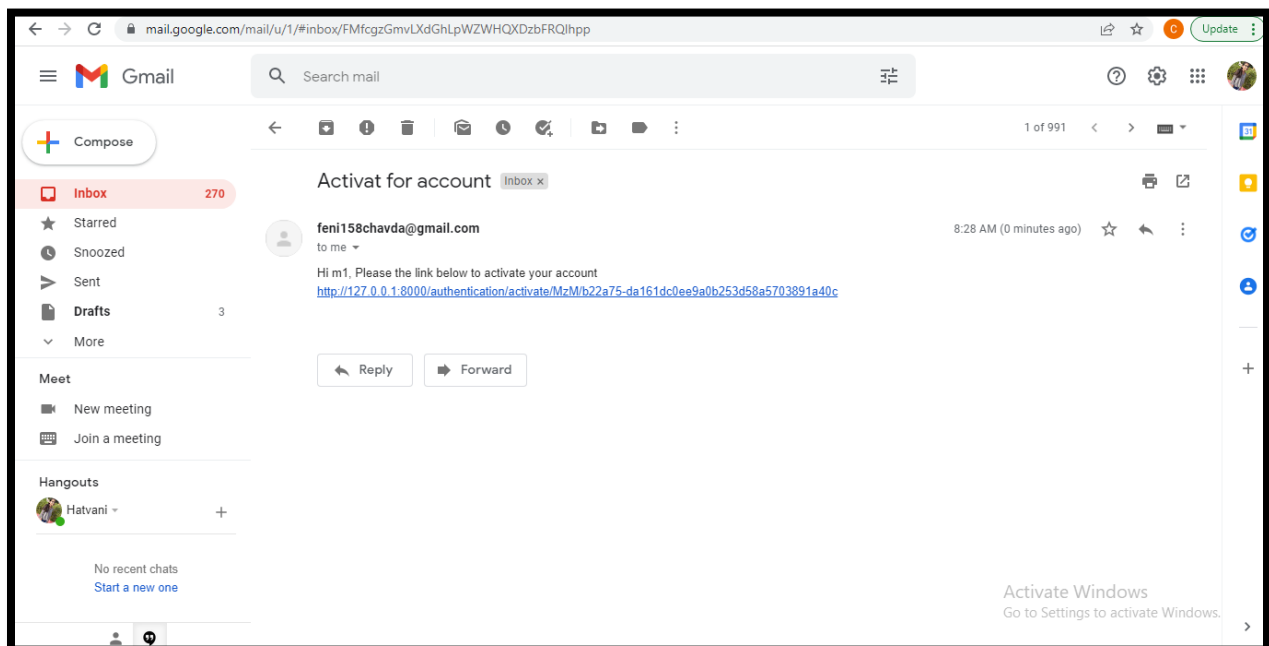
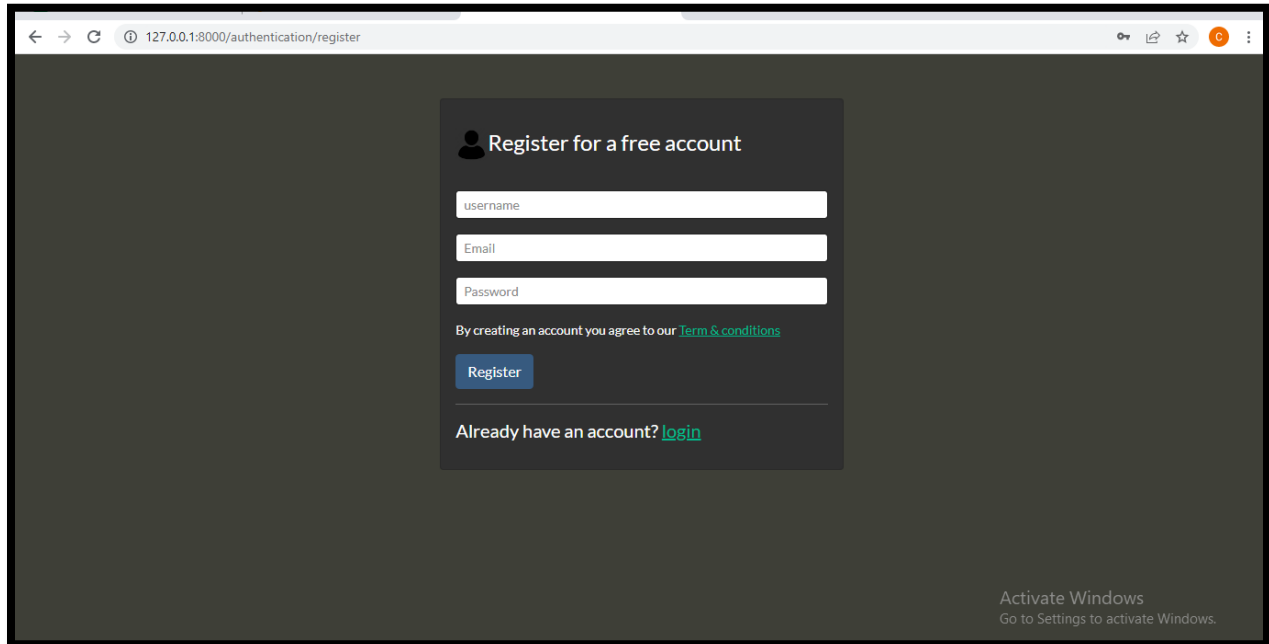
Manual testing was performed in order to find and fix the bugs in development process.

Sr no.	Test Scenario	Expected result	Actual result	Status
1	Enter to the website	Login Page should be displayed	Login page is displayed	Success
2	Login with correct credentials	User should be able to login	User is redirected to home page	Success
3	Login with incorrect credentials	Alert box is popped up with a message	Alert box is popped up	Success
4	Registering with registered username	'user already registered' alert box should be displayed	Alert box is popped up	Success
5	Entering different password and confirm password	'password does not match' alert box should be displayed	'password does not match' alert box is displayed	Success
6	Clicking on login/register button with empty fields	'invalid input' alert box should be appeared	'invalid input' alert box is appeared	Success
7	Logout	User should logged out from the system	User is logged out from the system and cannot use the system until next login	Success

8	Add Expense/income record to the database	Record should be added to the list of all the Record	Record is added to the list	Success
9	Expense/income page	List of all Expense/income should be appeared	List of all Expense/income is displayed	Success
10	Edit Expense/income record	Edit form should be visible	Edit form is visible	Success
11	Click on edit user Profile	User Record should be updated	Record is updated	Success
12	Click on Export Excel	Record File should be download	Record File download	Success
13	Expense/income record click on Delete	That recorded should be Deleted	Recorded Deleted	Success
14	Search Expense/income Record	Matched Expense/income record list should be visible	Matched Expense/income record list is visible	Success
15	Click on Expense/income Report	Expense/income page should be visible and display summary	Expense/income page is visible display summary	Success
16	Expense/income Report changing Category/source it will Reflect graph and display	Reflected should be graph and display	Reflected graph and display	Success
17	Click on Profile option	Profile should be visible	Profile is visible	Success
18	Click on edit profile button	Profile should be updated	Profile is updated	Success

7) Screen-shots

- **Registration**



- **Login :**

The screenshot shows a web browser window with the address bar displaying "127.0.0.1:8000/authentication/login". The page has a dark gray background. In the center, there is a white box titled "Login account" with a user icon. Inside this box, there are two input fields: the first contains the text "reena" and the second contains masked characters "*****". Below these fields is a blue "Login" button. Underneath the button, it says "Need an account? [register](#)". In the bottom right corner of the page, there is a small "Activate Windows" watermark with the text "Go to Settings to activate Windows."

- **Add-Expense:**

The screenshot shows a web browser window with the address bar displaying "127.0.0.1:8000/add-expense". The page has a dark blue header with the "Expensify" logo on the left and "Welcome, reena" and a "Logout" button on the right. A left sidebar menu contains sections for "DASHBOARD" (Expenses, Income), "REPORTS" (Expenses Summary, Income Summary), and "SETTINGS" (General, Profile, Add Category, Add Source). The main content area is titled "Expenses / Add Expenses" and contains a form with the following fields: "Amount" (text input), "Description" (text input), "Category" (text input with "SHOPPING" selected), and "Date of Expense" (calendar picker showing "dd-----yyyy"). A yellow "Submit" button is at the bottom of the form. In the bottom right corner, there is a small "Activate Windows" watermark with the text "Go to Settings to activate Windows."

- **Edit-Expense:**

Expensify

Welcome, reena Logout

Expenses / EditExpense Delete

Amount
200000.0

Description
clothes

Category
SHOPPING

Date of Expense
23-Nov-2021

Save

Activate Windows
Go to Settings to activate Windows.

- **Pagination and Display Statistic:**

Expensify

Welcome, dharmi1 Logout

Expenses / My Expenses Add Expense Export Excel

Search

Expense Statistics

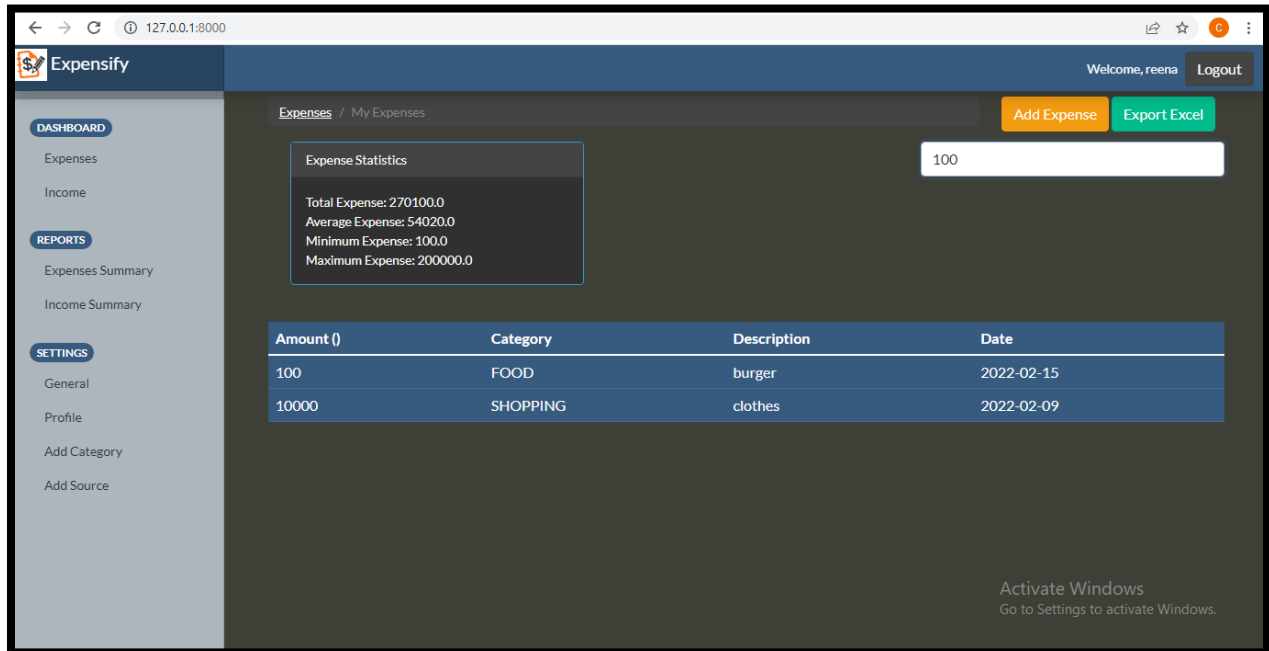
Total Expense: 252800.0
Average Expense: 10991.304347826086
Minimum Expense: 100.0
Maximum Expense: 100000.0

Amount	Category	Description	Date		
1000.0	FOOD	bjk	Dec. 20, 2021	Edit	Delete
100000.0	MEDICINES	demo	Feb. 17, 2022	Edit	Delete
5000.0	SHOPPING	fancy top	Jan. 14, 2022	Edit	Delete
8000.0	SHOPPING	clothes	Nov. 29, 2021	Edit	Delete
9000.0	SHOPPING	clothes	Dec. 1, 2021	Edit	Delete

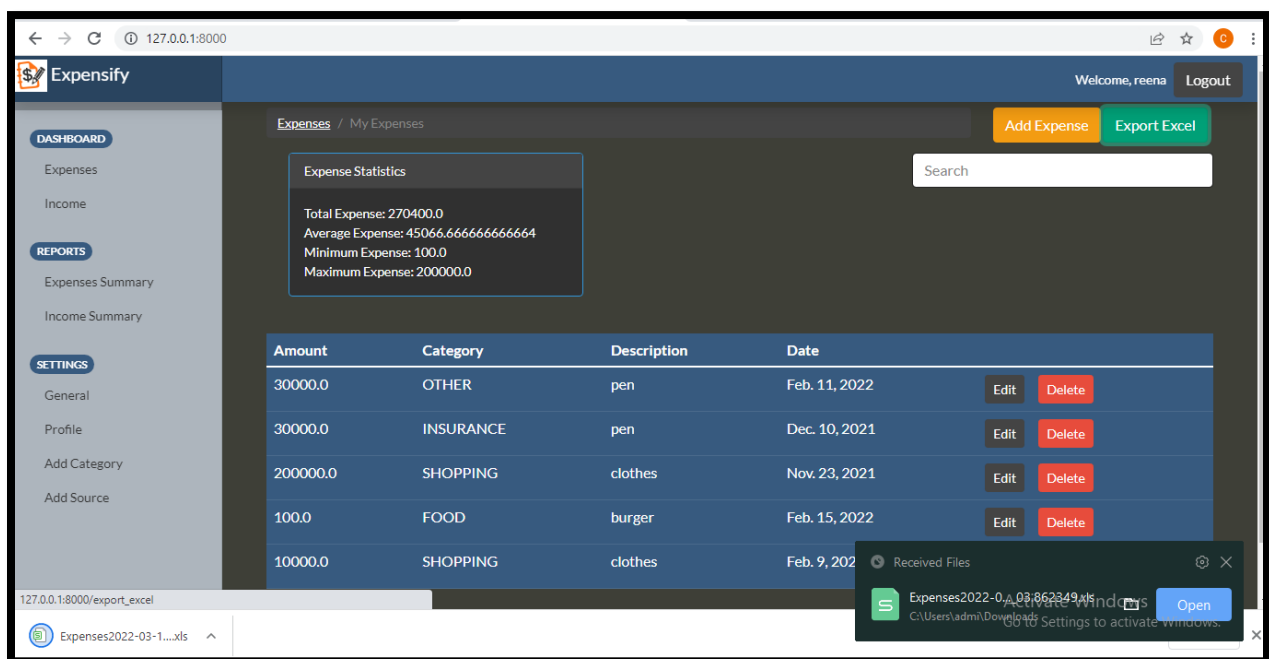
Showing page 1 of 5

Activate Windows
Go to Settings to activate Windows.
Next 5 »

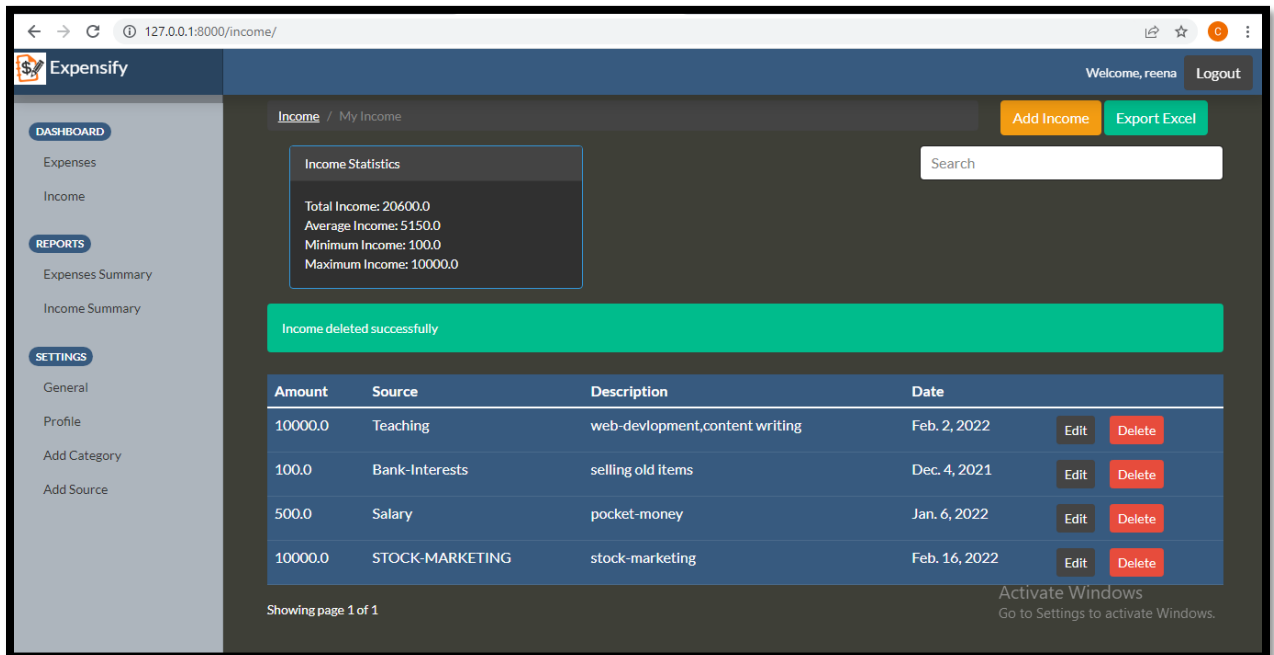
- **Expense Search :**



- **Export Excel File:**



- **Income Delete:**



Expensify

Welcome, reena Logout

Income / My Income

Add Income Export Excel

Search

Income Statistics

Total Income: 20600.0
Average Income: 5150.0
Minimum Income: 100.0
Maximum Income: 10000.0

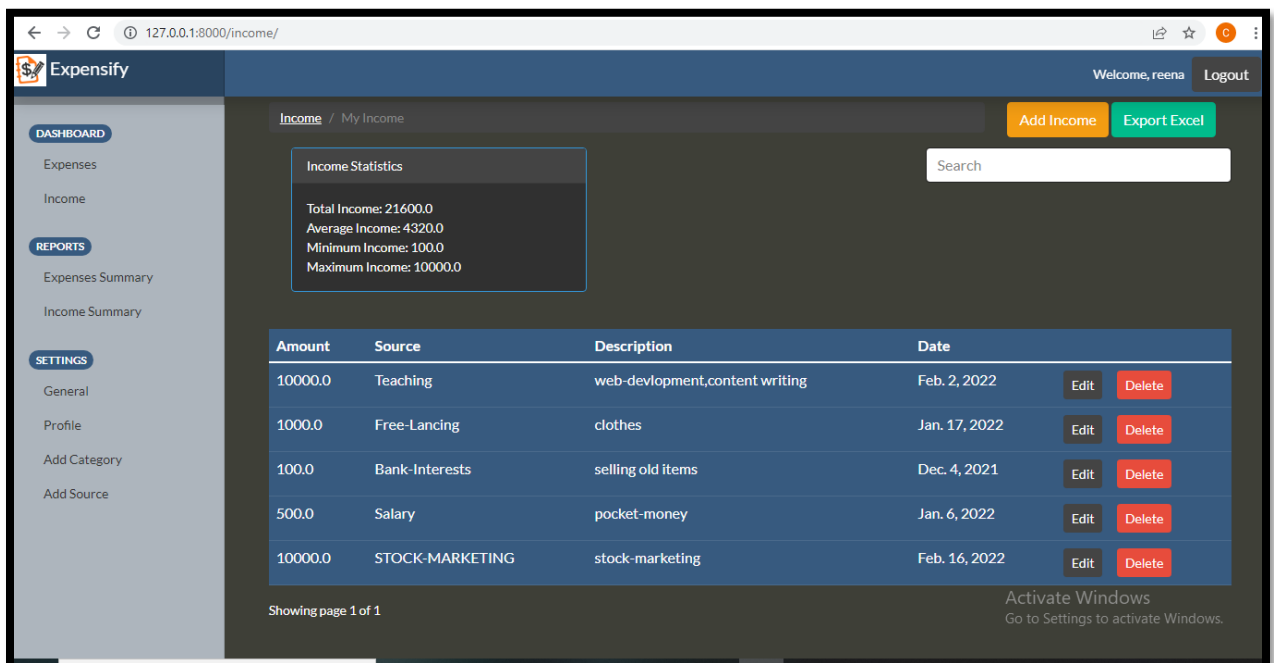
Income deleted successfully

Amount	Source	Description	Date		
10000.0	Teaching	web-development,content writing	Feb. 2, 2022	Edit	Delete
100.0	Bank-Interests	selling old items	Dec. 4, 2021	Edit	Delete
500.0	Salary	pocket-money	Jan. 6, 2022	Edit	Delete
10000.0	STOCK-MARKETING	stock-marketing	Feb. 16, 2022	Edit	Delete

Showing page 1 of 1

Activate Windows
Go to Settings to activate Windows.

- **Display Income Record and Statistic:**



Expensify

Welcome, reena Logout

Income / My Income

Add Income Export Excel

Search

Income Statistics

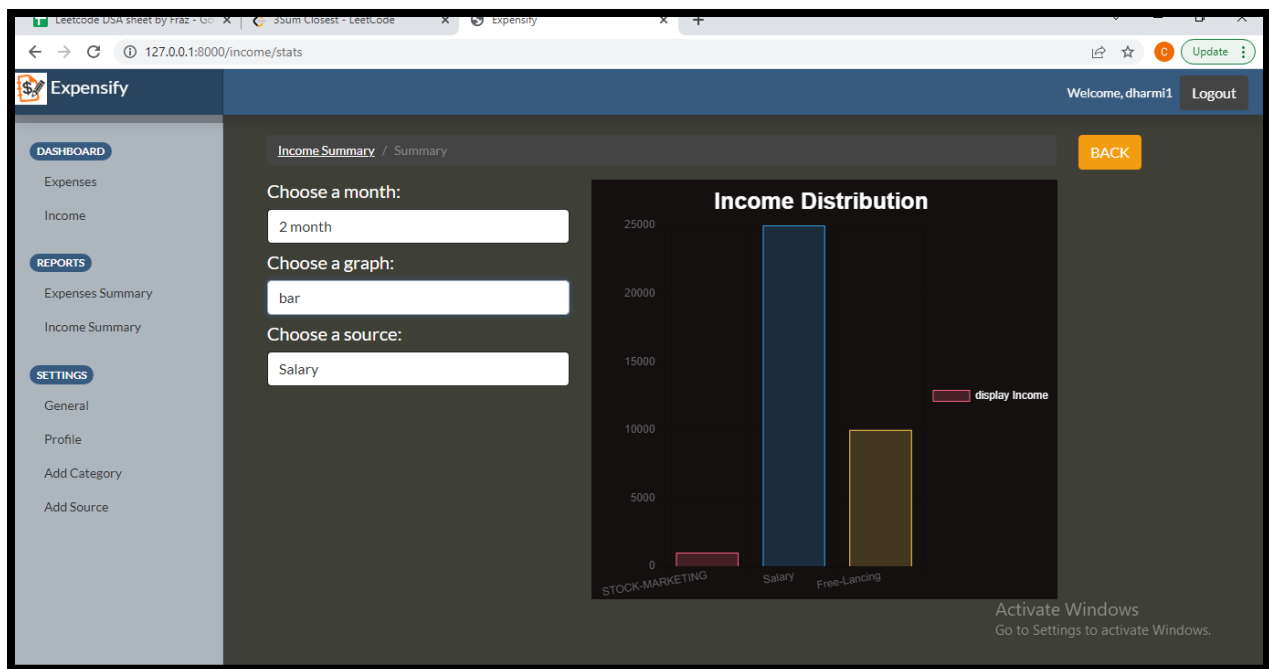
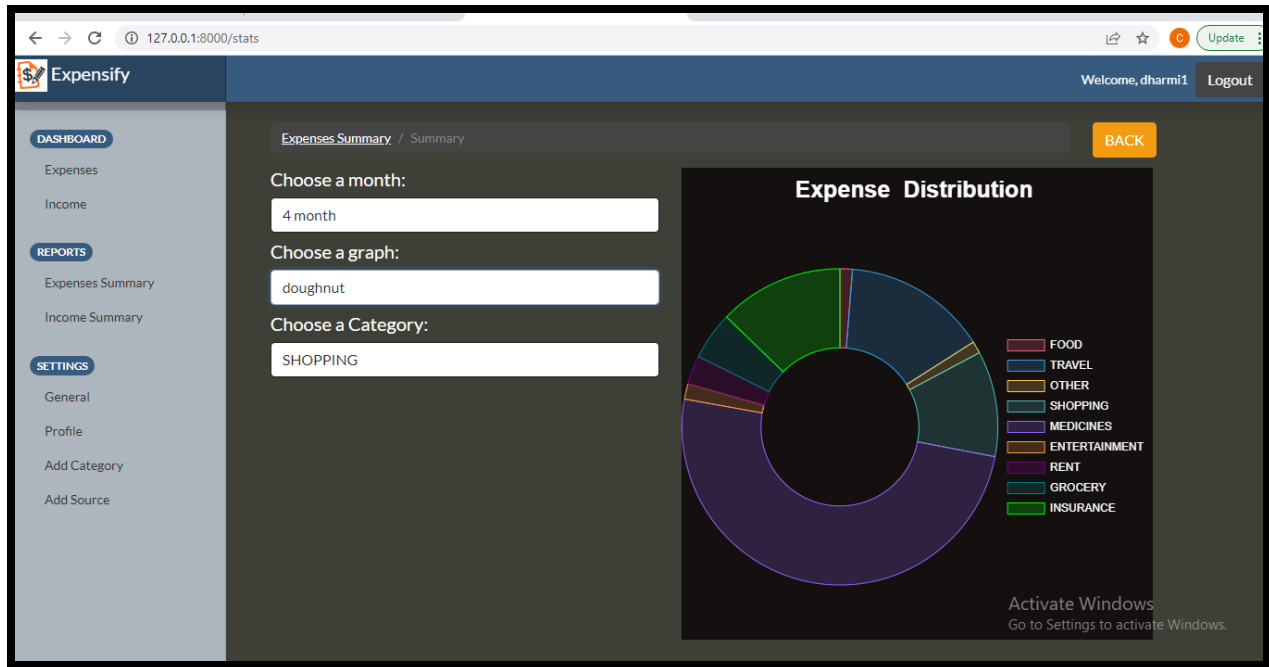
Total Income: 21600.0
Average Income: 4320.0
Minimum Income: 100.0
Maximum Income: 10000.0

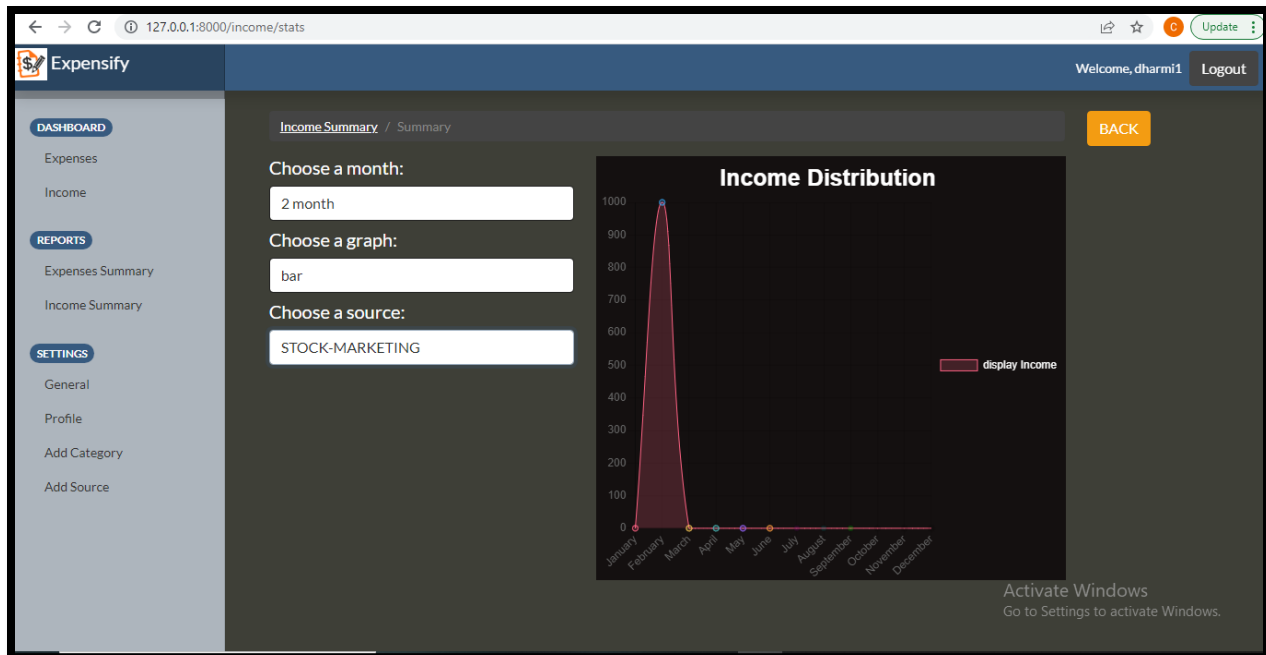
Amount	Source	Description	Date		
10000.0	Teaching	web-development,content writing	Feb. 2, 2022	Edit	Delete
1000.0	Free-Lancing	clothes	Jan. 17, 2022	Edit	Delete
100.0	Bank-Interests	selling old items	Dec. 4, 2021	Edit	Delete
500.0	Salary	pocket-money	Jan. 6, 2022	Edit	Delete
10000.0	STOCK-MARKETING	stock-marketing	Feb. 16, 2022	Edit	Delete

Showing page 1 of 1

Activate Windows
Go to Settings to activate Windows.

- **Expenses and Income Report** Category wise and Filter it with month and One Category :





8)Conclusion

The functionalities that are implemented in the system are prepared after understanding all functionalities according to software requirements specifications (SRS). Functionalities that are successfully implemented in the system are as follows:

- Login
- Registration
- User authentication
- Logout
- Add Expense/Income record
- Edit Expense/Income record
- Delete Expense/Income record
- Search Expense/Income record
- View Statistic Expense/Income record
- Export Excel Expense/Income record file
- Expense/Income Report
- Add Source/Category
- Edit profile

After implementing all these functionalities, comprehensive testing was performed on the system to determine possible errors.

9)Limitations and future extensions

Limitations:

- This project is suitable for small scale organization
- When type of category/source is very high then using graphs see the summary is Difficult.

Future extensions:

- We implement Functionality that convert rupees to other currency so is it use for any user.

10)Bibliography

Following links and websites were referred during the development of this project:

- www.docs.djangoproject.com
- <https://www.chartjs.org/>
- <https://github.com/>
- <https://stackoverflow.com/>
- <https://www.w3schools.com/>
- <https://getbootstrap.com/docs/4.0>
- <http://www.umletino.com/>
- <https://www.python.org/doc/>