# IBM Project Report On

# Intelligent bank loan application and Isolate Sensitive Data in your databases

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# Submitted to Department of Computer Science & Engineering Institute of Computer Technology



**Year: 2022** 



#### **CERTIFICATE**

This is to certify that the **IBM** Project work entitled "Intelligent bank loan application and Isolate Sensitive Data in your databases" by Kevin Pandya(Enrolment No.18082271004), Om Patel (Enrolment No.18162121013) and Rahul Prajapati (EnrolmentNo.18162171024) of Ganpat University, towards the partial fulfillment of requirements of the degree of Bachelor of Technology — Computer Science and Engineering, carried out by them in the CSE(CBA/BDA/CS) Department at Elegant Microweb Pvt. Ltd.. The results/findings contained in this Project have not been submitted in part or full to any other University / Institute for award of any other Degree/Diploma.

Name & Signature of Internal Guide

Name & Signature of Head

**Place: ICT - GUNI** 

Date:

#### **ACKNOWLEDGEMENT**

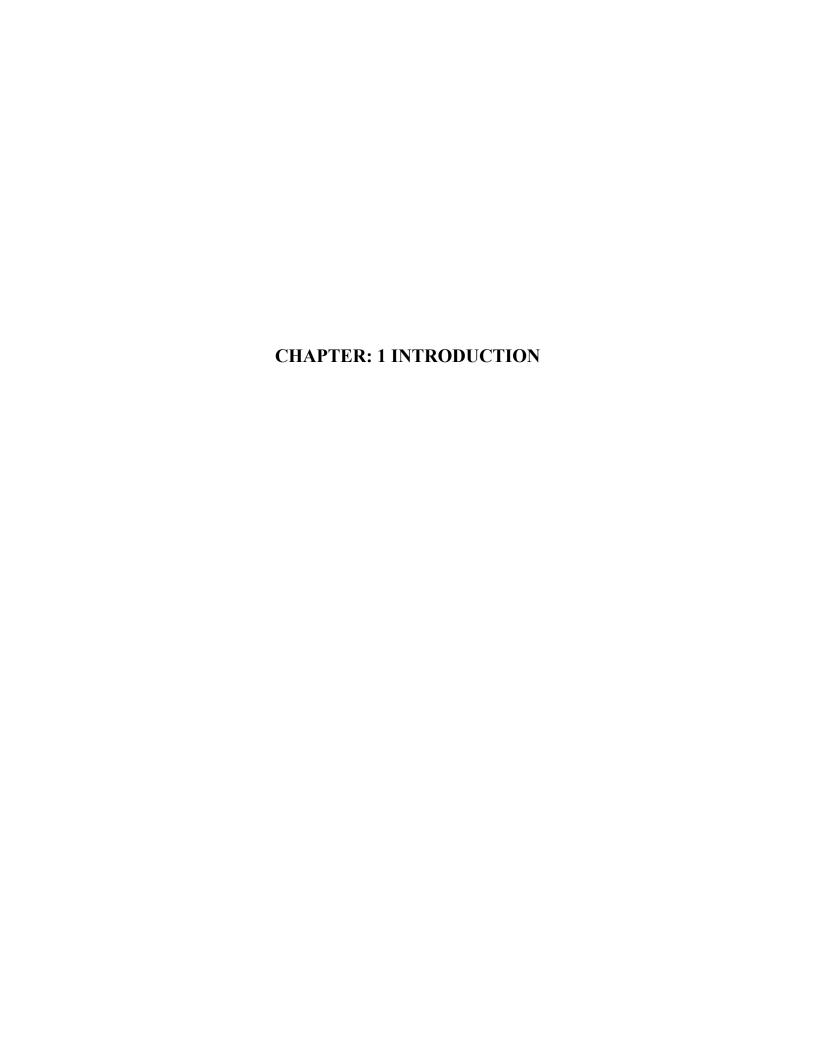
IBM Internship project is a golden opportunity for learning and self-development. I consider myself very lucky and honored to have so many wonderful people lead me through in completion of this project. First and foremost, I would like to thank Dr. Hemal Shah, Principal, ICT, and Prof. Dharmesh Darji , Head, ICT who gave us an opportunity to undertake this project. My grateful thanks to Prof. abc & Mr.xyz (Internal & External Guides) for their guidance in project work Predicting Application Rating of Google Play Store, who despite being extraordinarily busy with academics, took time out to hear, guide and keep us on the correct path. We do not know where we would have been without his/her help. CSE department monitored our progress and arranged all facilities to make life easier. We choose this moment to acknowledge their contribution gratefully.

# **ABSTRACT**

The ONLINE LOAN MANAGEMENT SYSTEM is an exceptionally productive interaction to deal with all credit related exchanges in an extremely precise and advantageous manner. Interface which offices a client to apply for an advance on the web and to follow the status every now and then. Utilizing it's a paperless framework so responsibility is diminished. It is extremely useful for the administrator.

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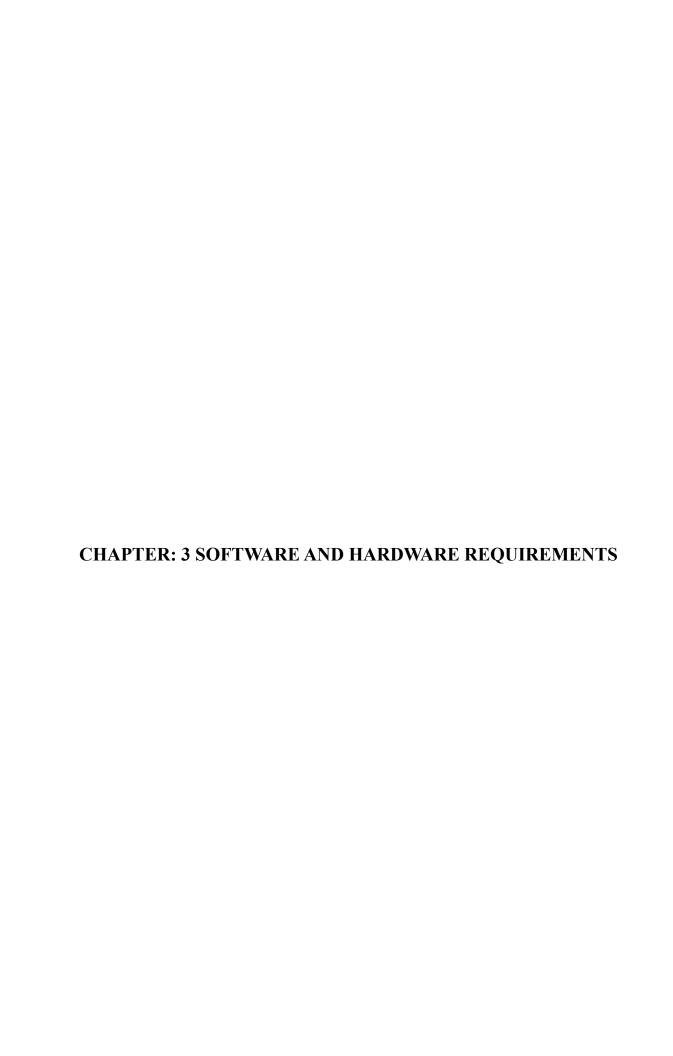
#### CHAPTER 1 INTRODUCTION

In the Online Loan Management System project, clients can apply for advances on the web. Clients need to enter credit applications on the web. Staff or administrators has position to support or reject advanced applications. Clients can see their Loan account subtleties, Interest rate, reimbursement plan subtleties, and so forth. Clients can make credit installments on the web. After the installment the framework creates a receipt with all out paid sum and equilibrium sum. The framework ascertains handling charge and late installment expense consequently. Chairmen can see installment subtleties, credit account subtleties, forthcoming installment subtleties, ended records, and so on.



#### **CHAPTER 2 PROJECT SCOPE**

- This framework is intended to handily keep up with the information of the advanced clients explicitly. Clients can apply for a credit without visiting the bank.
- Clients can apply for a credit account on the web. Clients need to fill their prerequisites in the advance application.
- This framework is made to keep the records about the clients who have taken an advance from a bank.
- This framework permits clients to make installments on the web.
- The chairman is the fundamental client of this web application and he can add worker subtleties, Loan types, punishment charges, and so forth
- Various types of Reports can be seen.



# **CHAPTER 3 SOFTWARE AND HARDWARE REQUIREMENTS**

# **Minimum Hardware Requirements**

Processor	2.0 GHz
RAM	4GB
HDD	40GB

Table 3.1 Minimum Hardware Requirements

# **Minimum Software Requirements**

Operating System	Any operating system which can support an internet browser.
Programming language	Python Django Framework for creating UI MySql server as Database AWS/IBM Cloud
Other tools & tech	Internet browser (further- Amazon Web Services like S3, EC2, EBS)

Table 3.2 Minimum Software Requirements



#### **CHAPTER 4 PROCESS MODEL**

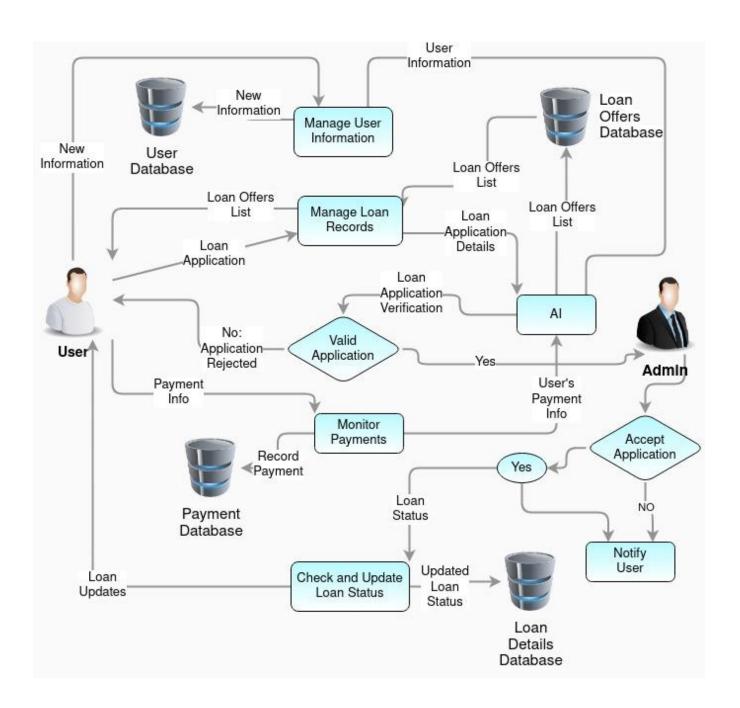


Figure 4.1 Process Model of Project

**CHAPTER: 5 PROJECT PLAN** 

#### **CHAPTER 5 PROJECT PLAN**

# 5.1 Approach

Foster an easy to understand GUI

Foster Separate secure Login Portals for credit banks and advance appliers Set up secure and secluded information exchanges of both advanced banks and credit candidates information.

Set up Credit Score Calculating System for Loan Applications Normal Loan Application Interface with Available Interest Rates and offers Application Acceptance and Rejection Interface from Loan Lenders Trading Loan Agreement Report Interface **CHAPTER: 6 IMPLEMENTATION DETAILS** 

#### **CHAPTER 6 IMPLEMENTATION DETAIL**

Language - Python 3 Frame work - Django Web Framework

IDE :- Visual Studio Operating System – Linux

Database:- Sqlite3 Domain :- localhost

Code:-

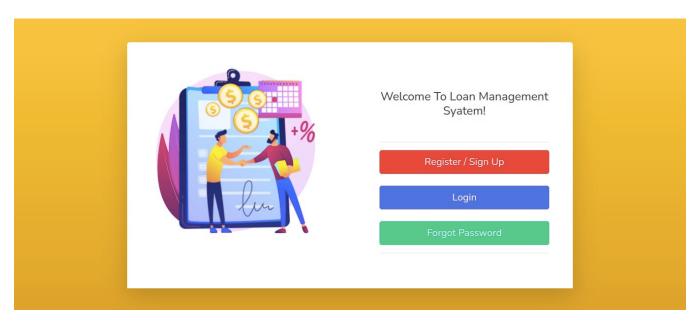


Figure 6.1 home page (Done by OM Patel)

#### Signup (Done By OM Patel):-

```
class SignUpForm(UserCreationForm):
    first_name = forms.CharField(max_length=30, required=False,
help_text='Optional')
    last_name = forms.CharField(max_length=30, required=False,
help_text='Optional')
    email = forms.EmailField(max_length=254, help_text='Enter a valid email
address')

class Meta:
    model = User
    fields = [
        'username',
```

```
'first_name',
'last_name',
'email',
'password1',
'password2',
]
```

# Output:-

Create an Account!	
Jsername*	
SSCHAILC	
Required. 150 characters or fewer. Letters, digits and @//+/-/_ only.	
First name	
Optional	
Last name	
Optional	
Email*	
enter a valid email address	
Password*	
Your password can't be too similar to your other personal information.	
<ul> <li>Your password must contain at least 8 characters.</li> <li>Your password can't be a commonly used password.</li> </ul>	
Your password can't be entirely numeric.	
Password confirmation*	
enter the same password as before, for verification.	
Submit	
Forgot Password?	
Already have an account? Login! Home	

Figure 6.2 signup page

#### Login() (Done by Kevin Pandya) :-

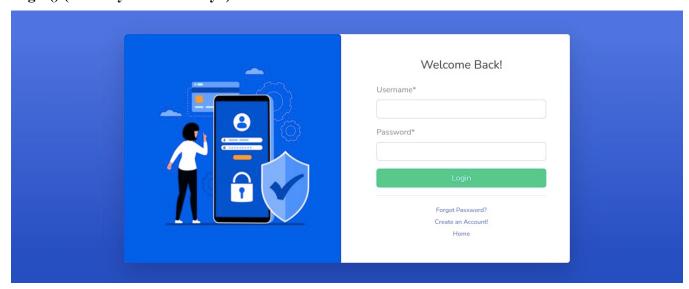


Figure 6.3 login page

#### Forgot Password (Done by Rahul Prajapati):-

```
Forget Password
  path('password-reset/',
       auth views.PasswordResetView.as view(
            template name='common/password-reset/password reset.html',
subject_template_name='common/password-reset/password_reset_subject.txt',
email_template_name='common/password-reset/password_reset_email.html',
           # success url='/login/'
       ),
       name='password reset'),
  path('password-reset/done/',
       auth views.PasswordResetDoneView.as view(
            template name='common/password-reset/password reset done.html'
       ),
       name='password_reset_done'),
  path('password-reset-confirm/<uidb64>/<token>/',
       auth views.PasswordResetConfirmView.as view(
            template name='common/password-reset/password reset confirm.html'
```

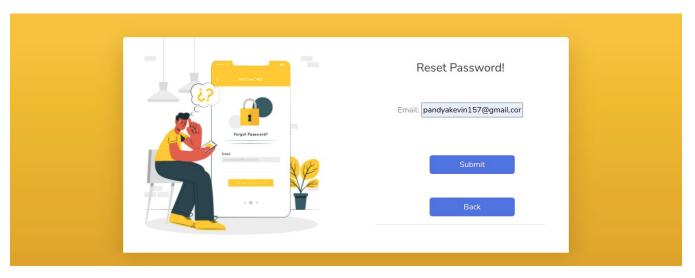


Figure 6.4: Reset Password Page

#### **Reset Password**

We have sended you reset password link on your email. Please Check Your Email.

Back to Login Page

#### Password reset on 127.0.0.1:8000 Inbox x

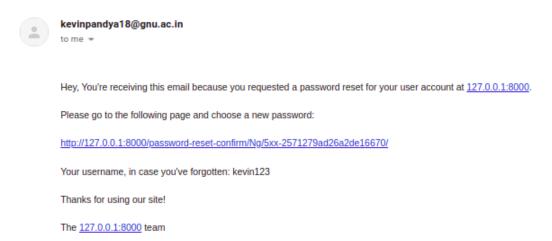


Figure 6.5: Password Reset Email

# Master Page (Done by OM Patel, Kevin Pandya, Rahul Prajapati):-



Figure 6.6: Master Page

#### Loan Page (Done by Kevin Pandya):-

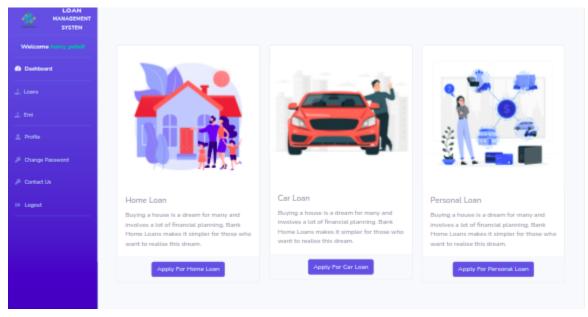


Figure 6.7: Loans Page

#### **EMI Calculator (Done by OM Patel):-**

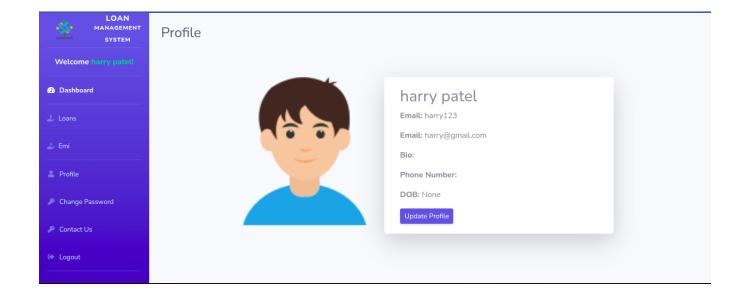
```
function emi() {if(document.getElementById('loan1').value==null | |
document.getElementById('loan1').value.length==0 ||
document.getElementById('months1').value==null ||
document.getElementById('months1').value.length==0 ||
document.getElementById('rate1').value==null ||
document.getElementById('rate1').value.length==0 )
{document.getElementById('pay1').value='Data Reqd.'}else {var pay1='';var
princ1= document.getElementById('loan1').value;var term1=
document.getElementById('months1').value;var
intr1=document.getElementById('rate1').value /
1200;document.getElementById('pay1').value =Math.round(princ1 * intr1 /
(1-(Math.pow(1/(1 + intr1), term1)))*100)/100;
document.getElementById('gt1').value=
Math.round((document.getElementById('pay1').value *
document.getElementById('months1').value)*100)/100;document.getElementById('tin
ttl').value=Math.round((document.getElementById('gt1').value*1 -
document.getElementById('loan1').value*1)*100)/100}}
```



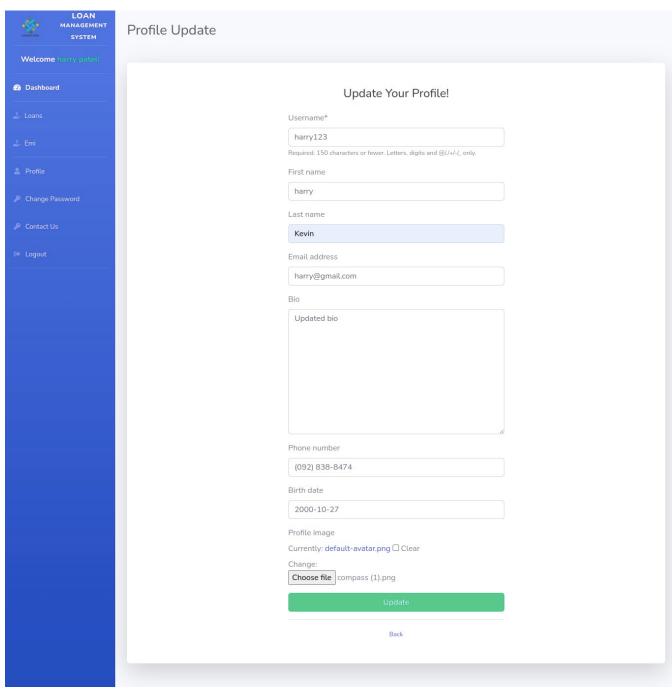
Figure 6.8: EMI Calculator

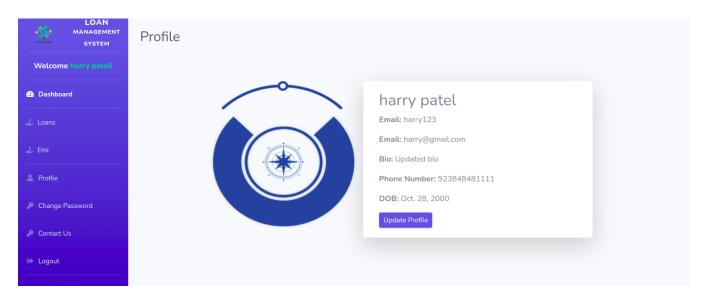
#### Profile Page (Done by Rahul Prajapati):-

```
class ProfileUpdateView(LoginRequiredMixin, TemplateView):
  profile form = ProfileForm
  template name = 'common/profile-update.html'
  def post(self, request):
      post data = request.POST or None
      file data = request.FILES or None
      user form = UserForm(post data, instance=request.user)
      profile form = ProfileForm(post data, file data,
instance=request.user.profile)
      if user form.is valid() and profile form.is valid():
          user form.save()
           profile form.save()
           messages.error(request, 'Your profile is updated successfully!')
           return HttpResponseRedirect(reverse lazy('profile'))
```

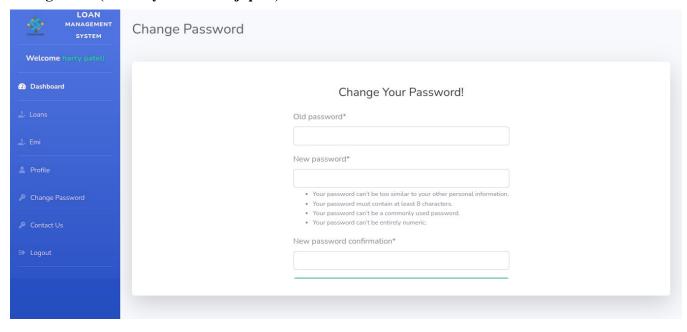


# Profile Update (Done by Rahul Prajapati):-

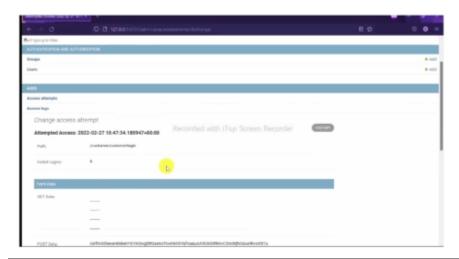




# Change Pwd (Done by Rahul Prajapati):-



# Loan Failure:-



```
AXES_ENABLED = True

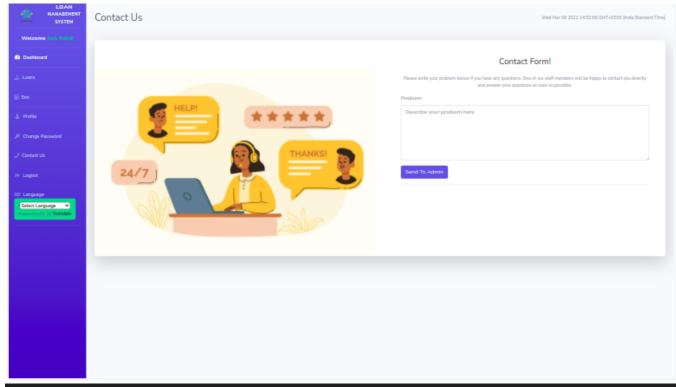
AXES_FAILURE_LIMIT = 5

AXES_COOLOFF_TIME = timedelta(minutes=3)

AXES_ONLY_USER_FAILURES = True

# AXES_LOCKOUT_TEMPLATE = 'template name'
```

# Contact-us (Done by Kevin Pandya):-

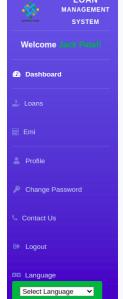


```
def admin_question_view(request):
    questions = models.Question.objects.all()
    return render(request, 'loan/admin_question.html', { 'questions':questions})
```

```
def ask_question_view(request):
    customer = models.Customer.objects.get(user_id=request.user.id)
    questionForm=CFORM.QuestionForm()

if request.method=='POST':
    questionForm=CFORM.QuestionForm(request.POST)
    if questionForm.is_valid():
        question = questionForm.save(commit=False)
        question.customer=customer
        question.save()
```

```
return redirect('question-history')
  return
render(request, 'customer/ask_question.html', { 'questionForm':questionForm, 'custo
mer':customer})
//admin
def contactus_view(request):
  sub = forms.ContactusForm()
  if request.method == 'POST':
       sub = forms.ContactusForm(request.POST)
      if sub.is valid():
           email = sub.cleaned data['Email']
           name=sub.cleaned data['Name']
           message = sub.cleaned data['Message']
           send mail(str(name)+' ||
'+str(email), message, settings.EMAIL_HOST_USER, settings.EMAIL_RECEIVING_USER,
fail silently = False)
           return render(request, 'loan/contactussuccess.html')
  return render(request, 'loan/contactus.html', {'form':sub})
```



#### Asked Question History To Admin

Wed Mar 09 2022 15:07:53 GMT+0530 (India Standard Time)

Sr No.	Question	Admin Comment	Asked Date
1	I have doubt	Hello	March 9, 2022
2	Doubt	Nothing	March 9, 2022

```
def update_question_view(request,pk):
    question = models.Question.objects.get(id=pk)
    questionForm=forms.QuestionForm(instance=question)

if request.method=='POST':
    questionForm=forms.QuestionForm(request.POST,instance=question)

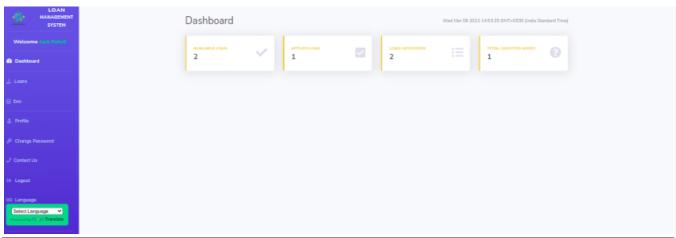
if questionForm.is_valid():
    admin_comment = request.POST.get('admin_comment')
    question = questionForm.save(commit=False)
    question.admin_comment=admin_comment
    question.save()

return redirect('admin-question')
return
render(request, 'loan/update_question.html', {'questionForm':questionForm})
```

```
def question_history_view(request):
    customer = models.Customer.objects.get(user_id=request.user.id)
    questions = CMODEL.Question.objects.all().filter(customer=customer)
```

```
return
render(request, 'customer/question_history.html', { 'questions':questions, 'custome
r':customer})
```

# Dashboard of client()

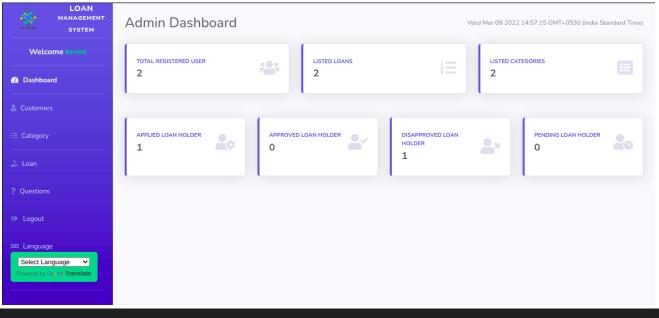


```
@login_required(login_url='customerlogin')
def customer_dashboard_view(request):
    dict={
        'customer':models.Customer.objects.get(user_id=request.user.id),
        'available_loan':CMODEL.Loan.objects.all().count(),

'applied_loan':CMODEL.LoanRecord.objects.all().filter(customer=models.Customer.objects.get(user_id=request.user.id)).count(),
        'total_category':CMODEL.Category.objects.all().count(),

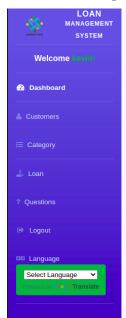
'total_question':CMODEL.Question.objects.all().filter(customer=models.Customer.objects.get(user_id=request.user.id)).count(),

}
return render(request,'customer/customer_dashboard.html',context=dict)
```



```
@login required(login url='adminlogin')
def admin dashboard view(request):
  dict={
       'total user': CMODEL. Customer.objects.all().count(),
       'total loan':models.Loan.objects.all().count(),
       'total category':models.Category.objects.all().count(),
       'total_question':models.Question.objects.all().count(),
       'total loan holder':models.LoanRecord.objects.all().count(),
approved loan holder':models.LoanRecord.objects.all().filter(status='Approved'
).count(),
disapproved loan holder::models.LoanRecord.objects.all().filter(status='Disapp
roved').count(),
'waiting loan holder':models.LoanRecord.objects.all().filter(status='Pending').
count(),
   }
  return render(request, 'loan/admin dashboard.html',context=dict)
```

#### **Customer list()**



#### Customers

Sr No.	Name	Profile Picture	Contact	Address	Update	Delete
1	Jack Patel	Profile Pic	1111111111	ahmedabad		Û
2	Rahul Prajapati	Profile Pic	1234567890	kjnj	<b>Z</b>	•

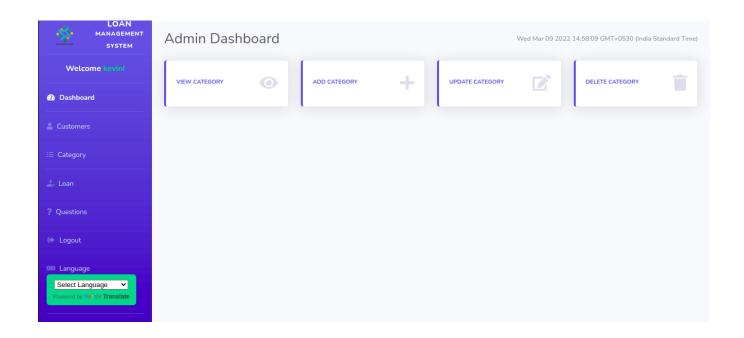
Wed Mar 09 2022 14:57:46 GMT+0530 (India Standard Time)

```
@login required(login url='adminlogin')
def admin view customer view(request):
   customers= CMODEL.Customer.objects.all()
   return
render(request,'loan/admin view customer.html',{'customers':customers})
@login required(login url='adminlogin')
def update customer view(request,pk):
   customer=CMODEL.Customer.objects.get(id=pk)
  user=CMODEL.User.objects.get(id=customer.user id)
  userForm=CFORM.CustomerUserForm(instance=user)
  customerForm=CFORM.CustomerForm(request.FILES,instance=customer)
  mydict={'userForm':userForm,'customerForm':customerForm}
  if request.method=='POST':
      userForm=CFORM.CustomerUserForm(request.POST,instance=user)
customerForm=CFORM.CustomerForm(request.POST,request.FILES,instance=customer)
       if userForm.is_valid() and customerForm.is_valid():
```

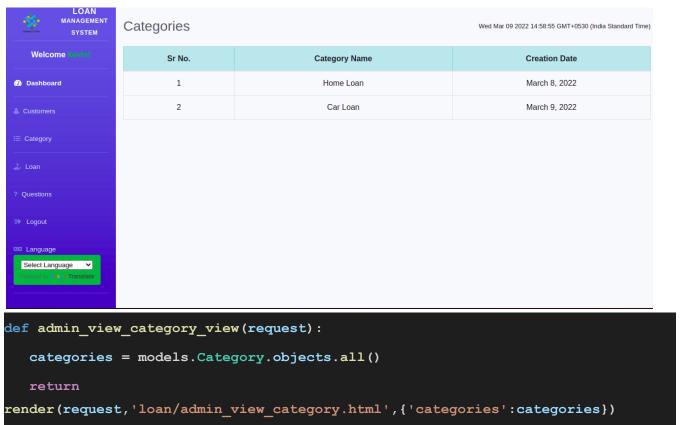
```
user=userForm.save()
    user.set_password(user.password)
    user.save()
    customerForm.save()
    return redirect('admin-view-customer')

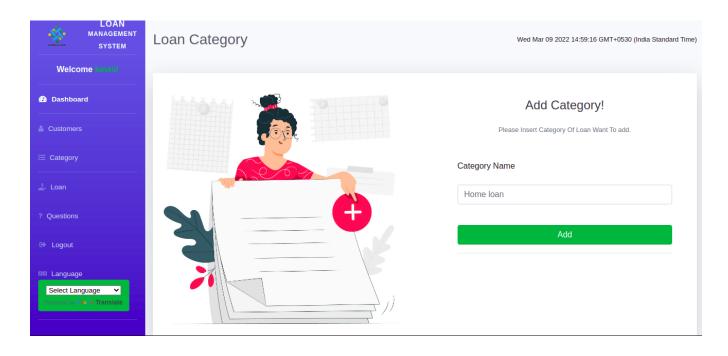
return render(request, 'loan/update_customer.html',context=mydict)

@login_required(login_url='adminlogin')
def delete_customer_view(request,pk):
    customer=CMODEL.Customer.objects.get(id=pk)
    user=User.objects.get(id=customer.user_id)
    user.delete()
    customer.delete()
    return HttpResponseRedirect('/admin-view-customer')
```

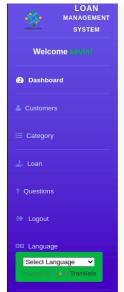


# **View Category**





```
def admin_add_category_view(request):
    categoryForm=forms.CategoryForm()
    if request.method=='POST':
        categoryForm=forms.CategoryForm(request.POST)
        if categoryForm.is_valid():
            categoryForm.save()
            return redirect('admin-view-category')
    return
render(request,'loan/admin_add_category.html',{'categoryForm':categoryForm})
```



# **Update Category**

Wed Mar 09 2022 14:59:42 GMT+0530 (India Standard Time)

Sr No.	Category Name	Creation Date	Update Category
1	Home Loan	March 8, 2022	<b>8</b>
2	Car Loan	March 9, 2022	<b>7</b>

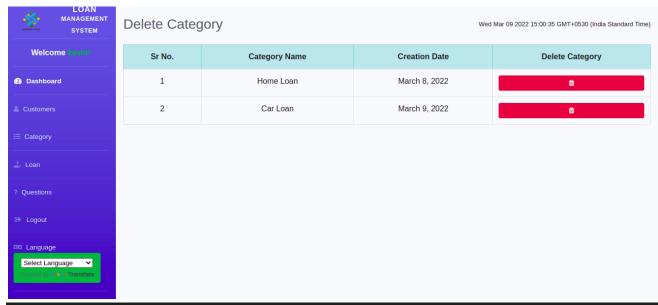
# Category Name Home Loan Update

```
@login_required(login_url='adminlogin')
def update_category_view(request,pk):
    category = models.Category.objects.get(id=pk)
    categoryForm=forms.CategoryForm(instance=category)

if request.method=='POST':
    categoryForm=forms.CategoryForm(request.POST,instance=category)

if categoryForm.is_valid():
```

# **Delete Category**



```
def admin_delete_category_view(request):
    categories = models.Category.objects.all()
    return
render(request, 'loan/admin_delete_category.html', { 'categories':categories})
```

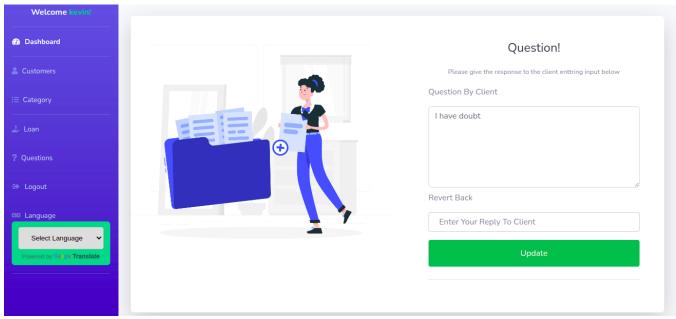


### Ouestions

Wed Mar 09 2022 15:01:16 GMT+0530 (India Standard Time)

Sr No.	Customer	Problem	Reply	Asked Date	Update
1	Jack	I have doubt	Hello	March 9, 2022	<b>Z</b>
2	Rahul	I have a simple question about this	Nothing	March 9, 2022	<b>Ø</b>

```
def admin_question_view(request):
    questions = models.Question.objects.all()
    return render(request,'loan/admin_question.html',{'questions':questions})
```



```
def update_question_view(request,pk):
    question = models.Question.objects.get(id=pk)
    questionForm=forms.QuestionForm(instance=question)
```

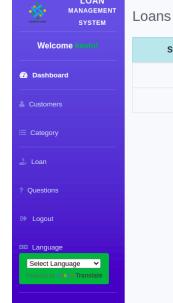
```
if request.method=='POST':
    questionForm=forms.QuestionForm(request.POST,instance=question)

if questionForm.is_valid():

    admin_comment = request.POST.get('admin_comment')
    question = questionForm.save(commit=False)
    question.admin_comment=admin_comment
    question.save()

    return redirect('admin-question')
    return
render(request,'loan/update_question.html',{'questionForm':questionForm})
```

# View Loan



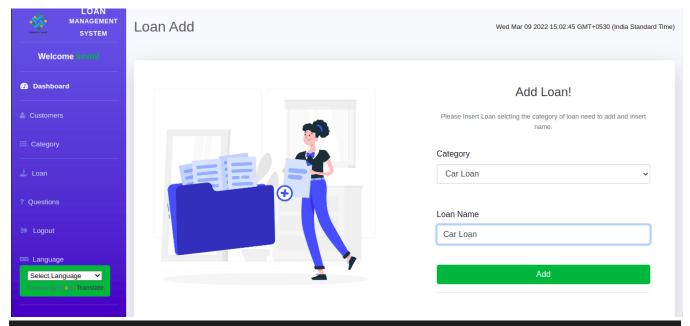
Sr No.	Loan Name	Category	Creation Date
1	Home Loan	Home Loan	March 8, 2022

Car Loan

Car Loan

Wed Mar 09 2022 15:02:10 GMT+0530 (India Standard Time)

March 9, 2022

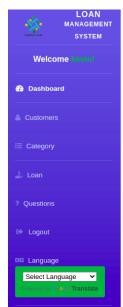


```
def admin_add_loan_view(request):
    loanForm=forms.LoanForm()

if request.method=='POST':
    loanForm=forms.LoanForm(request.POST)

if loanForm.is_valid():
    categoryid = request.POST.get('category')
    category = models.Category.objects.get(id=categoryid)
    loan = loanForm.save(commit=False)
    loan.category=category
    loan.save()
    return redirect('admin-view-loan')

return render(request,'loan/admin_add_loan.html',{'loanForm':loanForm})
```

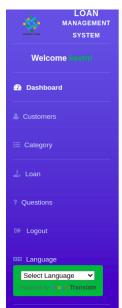


# Update Loan

Wed Mar 09 2022 15:03:11 GMT+0530 (India Standard Time)

Sr No.	Loan Name	Category	Creation Date	Update
1	Home Loan	Home Loan	March 8, 2022	<b>7</b>
2	Car Loan	Car Loan	March 9, 2022	<b>2</b>

```
@login_required(login_url='adminlogin')
def update_loan_view(request,pk):
  loan = models.Loan.objects.get(id=pk)
  loanForm=forms.LoanForm(instance=loan)
  if request.method=='POST':
      loanForm=forms.LoanForm(request.POST,instance=loan)
      if loanForm.is valid():
           categoryid = request.POST.get('category')
           category = models.Category.objects.get(id=categoryid)
           loan = loanForm.save(commit=False)
           loan.category=category
           loan.save()
           return redirect('admin-update-loan')
   return render(request, 'loan/update loan.html', { 'loanForm':loanForm})
```



# Delete Loan

Wed Mar 09 2022 15:04:27 GMT+0530 (India Standard Time)

Sr No.	Loan Name	Category	Creation Date	Delete
1	Home Loan	Home Loan	March 8, 2022	ů
2	Car Loan	Car Loan	March 9, 2022	Û

```
def admin_delete_loan_view(request):
    loans = models.Loan.objects.all()
    return render(request, 'loan/admin_delete_loan.html', { 'loans':loans})

def delete_loan_view(request,pk):
    loan = models.Loan.objects.get(id=pk)
    loan.delete()
    return redirect('admin-delete-loan')
```

# **Loan Applied**



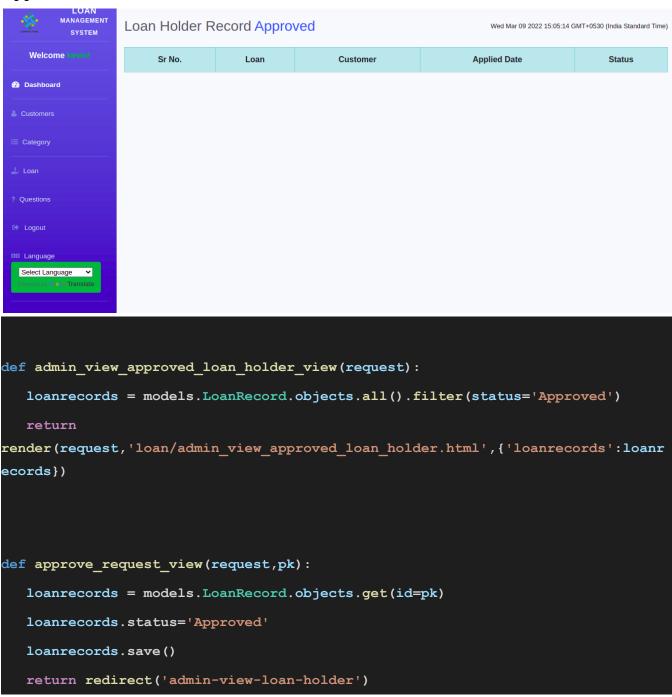
### Loan Holder Record

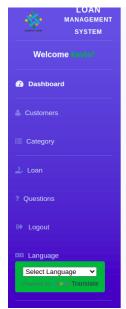
Wed Mar 09 2022 15:04:49 GMT+0530 (India Standard Time)

Sr No.	Loan	Customer	Applied Date	Status	Action
1	None	Jack	March 9, 2022	Disapproved	Disapproved

```
loanrecords = models.LoanRecord.objects.all()
    return
render(request, 'loan/admin_view_loan_holder.html', {'loanrecords':loanrecords})
```

# **Approved Loan**





# Loan Holder Record Disapproved

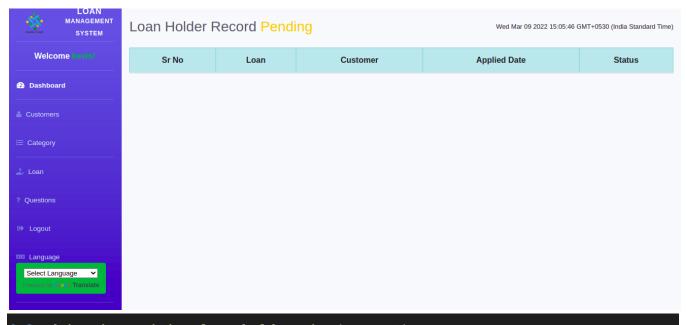
Wed Mar 09 2022 15:05:32 GMT+0530 (India Standard Time)

Sr No.	Loan	Customer	Applied Date	Status
1	None	Jack	March 9, 2022	Disapproved

```
def admin_view_disapproved_loan_holder_view(request):
    loanrecords = models.LoanRecord.objects.all().filter(status='Disapproved')
    return
render(request, 'loan/admin_view_disapproved_loan_holder.html', {'loanrecords':loanrecords})

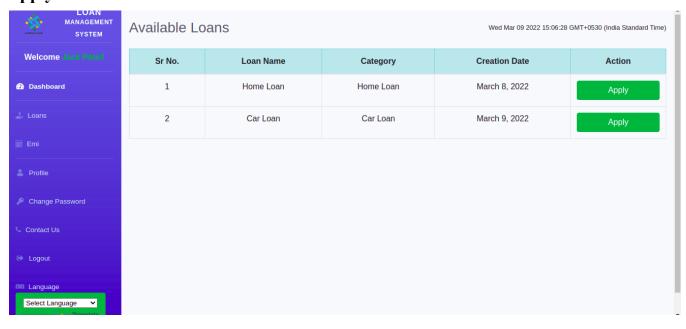
def disapprove_request_view(request,pk):
    loanrecords = models.LoanRecord.objects.get(id=pk)
    loanrecords.status='Disapproved'
    loanrecords.save()
    return_redirect('admin-view-loan-holder')
```

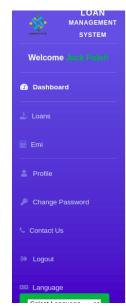
**Pending Loan** 



```
def admin_view_waiting_loan_holder_view(request):
    loanrecords = models.LoanRecord.objects.all().filter(status='Pending')
    return
render(request, 'loan/admin_view_waiting_loan_holder.html', { 'loanrecords':loanrecords})
```

# **Apply Loan Customer**





# History

Wed Mar 09 2022 15:06:51 GMT+0530 (India Standard Time)

Sr No.	Loan Name	Applied Date	Status
1	None	March 9, 2022	Disapproved
2	None	March 9, 2022	Pending

CHAPTER: 7 CONCLUSION AND FUTURE WORK

# **CHAPTER 7 CONCLUSION AND FUTURE WORK**

### Conclusion

This product gives an easy and user friendly User Interface where he will get intelligent suggestions for his loan management and loan applications.

This product makes the loan sanctioning fast and efficient by adding AI which will verify application details and documents and if it finds something wrong it will reject the application by itself.

All the transactions done will be secure.

# **Future work**

• Loan Approval Mechanism with AI/Ml



# **CHAPTER 8 REFERENCES**

- 1) https://www.leadsquared.com/loan-management-system-features-benefits/
- 2) https://lendfoundry.com/faq/why-should-you-use-a-cloud-based-loan-management-software/
- 3) https://lendfoundry.com/blog/10-features-of-the-perfect-loan-management-software/
- 4) https://www.arttha.com/choosing-a-loan-management-system-for-your-bank-key-features-to-consider -for-an-optimized-experience/
- 5) https://www.leadsquared.com/loan-management-system-features-benefits/