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**Vellore Institute of Technology**  
(Deemed to be University under section 3 of UGC Act, 1956)

# CSE2004 : DATABASE MANAGEMENT SYSTEMS

## **J-COMPONENT Project Report Review**

# **ATM Database management system**

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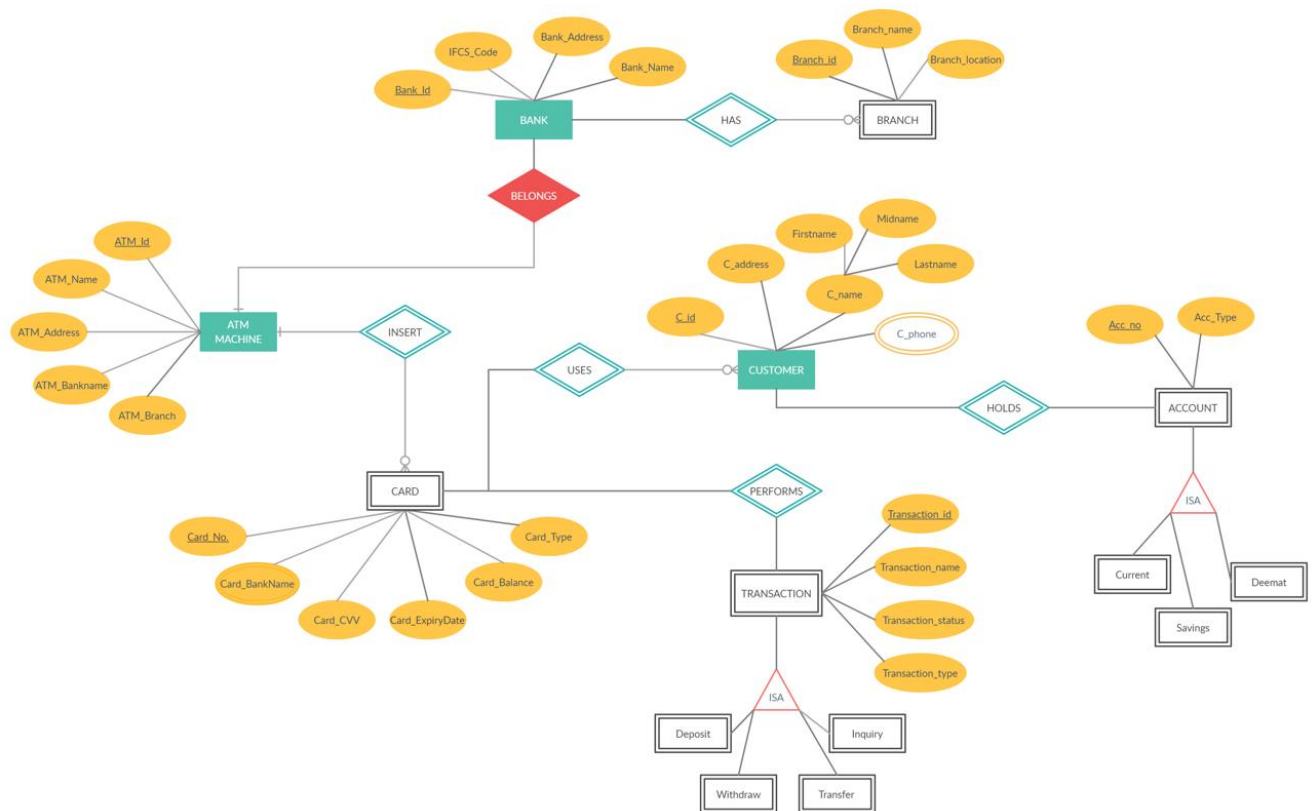
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## **ABSTRACT:**

This project is basically creating a database management system for the transaction that are being taken place in the ATM of any bank. Aim of the project is to creating a backend program of the processes taking place using SQL. This model deals with the relationship between the customer, ATM machine & Bank. The other entities play a supportive weak role. So basically this helps the banks to debit or credit the amount of the customer from his respective account and also keep the record of his/her transaction made.

## **ER DIAGRAM:**



## **TABLES :**

### **ATM Machine**

Attribute	Data type	Constraint
ATM_Id	Varchar2	Primary key
ATM_Name	Varchar2	None
ATM_Add	Varchar2	None
ATM_Bankname	Varchar2	None
ATM_Branch	Varchar2	None

### **Bank**

Attribute	Data type	Constraint
Bank_Id	Varchar2	Primary key
IFSC_Code	Varchar2	None
Bank_Add	Varchar2	None
Bank_Name	Varchar2	None
B_ATM_Id	Varchar2	Foreign key

### **Card**

Attribute	Data type	Constraint
Card_No	Number	Primary key
Card_Bankname	Varchar2	None
Card_CVV	Number	None
Card_ExpiryDate	Date	None
Card_Balance	Number	None
Card_Type	Varchar2	None

### Transaction

Attribute	Data Type	Constraint
Transaction_Id	Varchar2	Primary key
Transaction_Name	Varchar2	None
Transaction_status	Varchar2	None
Transaction_type	Varchar2	None

### Customer

Attribute	Data type	Constraint
C_Id	Varchar2	Primary key
C_add	Varchar2	None
F_name	Varchar2	None
M_Name	Varchar2	None
L_Name	Varchar2	None
C_Card_No	Number	Foreign Key

### Branch

Attribute	Data type	Constraint
Branch_Id	Varchar2	Primary key
Branch_Name	Varchar2	None
Branch_loc	Varchar2	None
B_Bank_Id	Varchar2	Foreign key

### Account

Attribute	Data type	Constraint
Acc_No	Number	Primary key
Acc_type	Varchar2	None
A_C_Id	Varchar2	Foreign Key

### Current

Attribute	Data type	Constraint
Acc_No	Number	Primary & Foreign Key

### Savings

Attribute	Data type	Constraint
Acc_No	Number	Primary & Foreign Key

### Deemat

Attribute	Data type	Constraint
Acc_No	Number	Primary & Foreign Key

### Deposit

Attribute	Data type	Constraint
Transaction_Id	Varchar2	Primary & Foreign key

### Withdraw

Attribute	Data type	Constraint
Transaction_Id	Varchar2	Primary & Foreign key

### Transfer

Attribute	Data type	Constraint
Transaction_Id	Varchar2	Primary & Foreign key

### Inquiry

Attribute	Data type	Constraint
Transaction_Id	Varchar2	Primary & Foreign key

### Customer Phone

Attribute	Data type	Constraint
P_C_Id	Varchar2	Primary & Foreign key
C_phone	Number	None

### Temp

Attribute	Data type	Constraint
Card_No	Number	Primary key
C_Trans_Id	Varchar2	Primary key

### Code:

```
create table Transaction(  
Transaction_Id varchar2(10) primary key,  
Transaction_Name varchar2(10),  
Transaction_status varchar2(10),  
Transaction_type varchar2(10)  
)  
  
create table Card(  
Card_No number(16) primary key,  
Card_Bankname varchar2(10),  
Card_CVV number(3),
```

```
Card_ExpiryDate date,
Card_Balance number(16),
Card_Type varchar2(10)
)

create table ATM_Machine(
ATM_Id varchar2(10) primary key,
ATM_Name varchar2(10),
ATM_Add varchar2(80),
ATM_Bankname varchar2(10),
ATM_Branch varchar2(10)
)

create table Bank(
Bank_Id varchar2(10) primary key,
IFSC_Code varchar2(15),
Bank_Add varchar2(80),
Bank_Name varchar2(10),
B_ATM_Id varchar2(10) references ATM_Machine(ATM_Id)
)

create table Customer(
C_Id varchar2(10) primary key,
C_add varchar2(80),
F_name varchar2(20),
M_name varchar2(20),
L_name varchar2(20),
C_Card_No number(16) references Card(Card_No)
)

create table Branch(
Branch_Id varchar2(15) primary key,
Branch_Name varchar2(15),
Branch_loc varchar2(15),
```

```
B_Bank_Id varchar2(10) references Bank(Bank_Id)
)
create table Account(
Acc_no number(16) primary key,
Acc_type varchar2(10),
A_C_Id varchar2(10) references Customer(C_Id)
)
create table CurrentA(
Acc_no number(16) primary key
)
create table Savings(
Acc_no number(16) primary key
)
create table Demat(
Acc_no number(16) primary key
)
create table CustomerPhone(
P_C_Id varchar2(10) primary key,
C_phone number(10)
)
alter table CurrentA
add foreign key (Acc_no) references Account(Acc_no);
alter table Savings
add foreign key (Acc_no) references Account(Acc_no);
alter table Demat
add foreign key (Acc_no) references Account(Acc_no);
```



## **NORMALIZATION:**

### **ATM machine table**

Attributes : ATM\_Id, ATM\_Name, ATM\_Add, ATM\_BankName, ATM\_Branch

Functional dependencies :-

ATM\_Id --> ATM\_Name

ATM\_Id --> ATM\_Bankname

ATM\_Id --> ATM\_Branch

ATM\_Bankname, ATM\_Branch --> ATM\_Add

Primary key : ATM\_Id

### **2NF :**

The table is already in 2NF form because there are no partial dependencies.

### **3NF :**

#### **Step I:**

The table is not in 3NF because on checking the functional dependencies, we find we find transitive dependencies where RHS has non-key attributes, so splitting it into two more tables :

Table I : (ATM\_BankName, ATM\_Branch, ATM\_Add)

Table II : (ATM\_Id, ATM\_Name, ATM\_BankName, ATM\_Branch)

#### **Step II :** Checking the new tables for 3NF form

Now Table I and II are in 3NF form.

### **BCNF:**

Table I and II are in BCNF form too.

## **Bank table**

Attributes : Bank\_Id, IFSC\_Code, Bank\_Add, Bank\_Name

Functional dependencies :

Bank\_Id --> IFSC\_Code

IFSC\_Code --> Bank\_Name

IFSC\_Code --> Bank\_Add

Primary key : Bank\_Id

### **2NF:**

The table is already in 2NF form because there are no partial dependencies.

### **3NF:**

#### **Step I:**

The table is not in 3NF because on checking the functional dependencies, we find we find transitive dependencies where RHS has non-key attributes, so splitting it into two more tables :

Table I : (IFSC\_Code, Bank\_Name, Bank\_Add)

Table II : (Bank\_Id, IFSC\_Code)

#### **Step II :** Checking the new tables for 3NF form

Now Table I and II are in 3NF form.

### **BCNF :**

Table I and II are in BCNF form too.

### **Card table**

Attributes : Card\_No, Card\_BankName, Card\_CVV, Card\_ExpiryDate,  
Card\_Balance, Card\_Type

Functional dependencies :

Card\_No --> Card\_BankName

Card\_No --> Card\_CVV

Card\_No --> Card\_ExpiryDate

Card\_No --> Card\_Balance

Card\_No --> Card\_Type

Primary key : Card\_No

#### **2NF:**

The table is already in 2NF form because there are no partial dependencies

#### **3NF:**

The table is already in 3NF form because there are no transitive dependencies among the attributes

#### **BCNF:**

The table is in BCNF form too

### **Customer table**

Attributes : C\_Id, C\_add, F\_name, M\_name, L\_name

Functional dependencies :

C\_Id --> F\_name

C\_Id --> M\_Name

C\_Id --> L\_Name

C\_Id --> C\_add

Primary key : C\_Id

**2NF:**

The table is already in 2NF form because there are no partial dependencies

**3NF:**

The table is already in 3NF form because there are no transitive dependencies among the attributes

**BCNF:**

The table is in BCNF form too

**Branch table**

Attributes : Branch\_Id, Branch\_Name, Branch\_loc

Functional dependencies :

Branch\_Id --> Branch\_Name

Branch\_Id --> Branch\_loc

Primary key : Branch\_Id

**2NF:**

The table is already in 2NF form because there are no partial dependencies

**3NF:**

The table is already in 3NF form because there are no transitive dependencies among the attributes

**BCNF:**

The table is in BCNF form too

## **Account table**

Attributes : Acc\_no, Acc\_type

Functional dependencies:

Acc\_No --> Acc\_type

Primary key : Acc\_no

### **2NF:**

The table is already in 2NF form because there are no partial dependencies

### **3NF:**

The table is already in 3NF form because there are no transitive dependencies among the attributes

### **BCNF:**

The table is in BCNF form too

\*\*\*\*

## **ATM Machine**

ATM_Id	ATM_Name	ATM_Add	ATM_BankName	ATM_Branch
I095752	ICATM_061	Trinity Business Park, G-2, LP Savani Rd, LP Savani, Surat, Gujarat 395009	ICICI Bank	LP Savani
I036842	ICATM_949	Kadodara Rd, Puna Khumbhariya, Bhavani Industrial Estate, Kalupur, Surat, Gujarat 394210	Indian Bank	Kalupur
I028296	OBATM_324	PB. ON. 286, Kanpith, Bhagatalav, Bhagat, Chowk Bazar Rd,	ICICI Bank	Varachha

		Varachha, Surat, Gujarat 395003		
T208361	OTATM_805	G-1/A ITC Building, Majura Gate Crossing, Katargam, Surat, Gujarat 395002	T JSM Bank	Katargam
H088295	OHATM_037	G/3, Sai Avenue Apartment Dindoli, opposite Rukmani Park, Bhagal, Gujarat 394210	HDFC Bank	Bhagal
I095840	OIATM_734	Shop No.12 to 15, Ring Rd, Reshamwala Market, Adajan, Surat, Gujarat 395002	Indian Bank	Adajan
A098206	OAATM_501	ShopNo.49 Atlanta Shopping Mall,New, Udhana, Surat, Gujarat 395001	Andhra Bank	Udhana

## Bank

Bank_Id	IFSC_Code	Bank_Add	Bank_Name	B_Atm_Id
ICB00276	ICBK0000672	Silver Palm 1, Opposite Snehmilan Garden, Kadampally Society, Timaliawad, Nanpura, Surat, Gujarat 395001	ICICI Bank	I095752
IB03728	IBBK0000836	Meridian Tower, Ground Floor, UG2, Ring Rd, Udhana Darwaja, Bhatena, Surat, Gujarat 395001	Indian Bank	I036842
ICB00277	ICBK0000259	Station Road, Begampura Rd, Zampa Bazaar,	ICICI Bank	I028296

		Surat, Gujarat 395003		
TB02654	TBBK0000847	Shoping center, Mahavir Surat, Mahavir Nagar Society, Katargam, Surat, Gujarat 395004	T JSM Bank	T208361
HB04302	HBBK0000328	Prime Arcade, 1st Floor, Tower A, Adajan, Surat, Gujarat 395009	HDFC Bank	H088295
IB06824	IBBK0000949	Trade House, SHOP NO. 4,GROUND, Ring Rd, Salabatpura, Surat, Gujarat 395002	Indian Bank	I095840
AB02950	ABBK0000471	Plot No.57/A, Ug Shop No.10 To 12, Survey No.513,Sarela Shopping Centre, Athwa, Surat, Gujarat 395007	Andhra Bank	A098206

### Card

Card_No	Card_BankName	Card_CVV	Card_Expiry Date	Card_Balance	Card_Type
6682 1123 0900 8811	ICICI Bank	234	01-04-2024	44625	Debit
8721 3457 7632 6783	Indian Bank	934	12-05-2023	22334	Debit
3823 5983 9245 4028	ICICI Bank	446	23-07-2024	4450	Credit
9372 8990 8266 0254	T JSM Bank	268	30-09-2021	23454	Pre-paid
4983 8383 9366 0553	HDFC Bank	751	26-03-2022	11890	Credit
1727 4507 0457 0482	Indian Bank	693	10-10-2023	9764	Pre-paid
8783 9394 0035 9240	Andhra Bank	591	18-01-2025	27950	Debit

### Customer

C_Id	C_add	F_name	M_name	L_name	C_Card_No
CU001ER	6 th Floor, Gandhi Palace, Nr Jain Derasar, B/h On-Off Showroom, Timaliyawad,	Arvind	Devdutt	Sinha	6682 1123 0900 8811

	Nanpura, Surat				
CU838ER	Shop 238, Adarsh Market 2, Ring Rd, Surat, Gujarat	Gaurav	Anish	Patil	8721 3457 7632 6783
CU933ER	46 , Old Qtr No , Kem Hospital, Parel, Surat, 400012	Bhaves	Nandan	Garg	3823 5983 9245 4028
CU023ER	95 / Lujwanti Apartments, Nal Stop,near Sonal Hall,karve Road, Erandwane, Pune, 411004	Jenish	Anand	Patel	9372 8990 8266 0254
CU766ER	Wz 325, Jail Road, Near Ibp Petrol Pump, Hari Nagar, 110064	Pratham	Ramesh	Shinde	4983 8383 9366 0553
CU038ER	140 , So Lucky Corner, Sir M.v. Road, Opp Holy Family Church	Chinmay	Ishant	Tripathi	1727 4507 0457 0482
CU503ER	Daya Niwas, 137 S K Bole Road, Agar Bazar, Surat	Rahul	Arjun	Arora	8783 9394 0035 9240

### Branch

Branch_Id	Branch_Name	Branch_loc	B_Bank_Id
BR0092	NP Savani Branch	LP Savani	ICB00276
BR8822	KP Branch	Kalupur	IB03728
BT7529	Varachha Branch	Varachha	ICB00277
BR6280	KG Branch	Katargam	TB02654
BR5282	Bhagal Branch	Bhagal	HB04302
BR1721	AJ Branch	Adajan	IB06824
BR3277	UA Branch	Udhana	AB02950



## Account

Acc_no	Acc_type	A_C_Id
0092000186549364	Savings	CU001ER
8822000167543288	Savings	CU838ER
7529000385439864	Demat	CU933ER
6280000265678969	Current	CU023ER
5282000178755432	Savings	CU766ER
1721000245432199	Current	CU038ER
3277000385467942	Demat	CU503ER

## Current

Acc_no
6280000265678969
1721000245432199

## Savings

Acc_no
0092000186549364
8822000167543288
5282000178755432

## Demat

Acc_no
7529000385439864
3277000385467942

## Customer Phone

P_C_Id	C_phone
CU001ER	9949996227
CU838ER	9229737388
CU933ER	8140727253
CU023ER	9182936825
CU766ER	9898772625
CU038ER	9079484037
CU503ER	7288928276

## Database:

phpMyAdmin interface showing the 'transaction' table in the 'atm database'.

Sort by key: None

TRANSACTION_ID	TRANSACTION_NAME	TRANSACTION_STATUS	TRANSACTION_TYPE
5	deposited	COMPLETED	DEPOSIT
6	withdrawn	COMPLETED	WITHDRAW
7	withdrawn	COMPLETED	WITHDRAW
8	withdrawn	COMPLETED	WITHDRAW
9	transfer	COMPLETED	TRANSFER
10	transfer	COMPLETED	TRANSFER
11	0	COMPLETED	BALANCE EN
12	0	COMPLETED	BALANCE EN
13		COMPLETED	BALANCE EN
14		COMPLETED	BALANCE EN
15		COMPLETED	BALANCE EN
16		COMPLETED	BALANCE EN
17	deposited	COMPLETED	DEPOSIT
18	withdrawn	COMPLETED	WITHDRAW
19	transfer	COMPLETED	TRANSFER
20		COMPLETED	BALANCE EN
21		COMPLETED	BALANCE EN
22	deposited	COMPLETED	DEPOSIT
23	deposited	COMPLETED	DEPOSIT
24	deposited	COMPLETED	DEPOSIT
25		COMPLETED	BALANCE EN
26		COMPLETED	BALANCE EN
27		COMPLETED	BALANCE EN

phpMyAdmin interface showing the 'card' table in the 'atm database'.

Showing rows 0 - 3 (4 total, Query took 0.0013 sec)

```
SELECT *
FROM `card`
LIMIT 0 , 30
```

Profiling [ Inline ] [ Edit ] [ Explain SQL ] [ Create PHP Code ] [ Refresh ]

Show: Start row: 0 Number of rows: 30 Headers every 100 rows

Sort by key: None

CARD_NO	CARD_BANKNAME	CARD_CVV	CARD_EXPIRYDATE	CARD_BALANCE	CARD_TYPE
76326783	Indian	934	2024-04-01	23335	debit
83886071	ICICI	234	2024-04-01	52625	debit
90088110	ICICI	345	2024-04-01	43625	debit
92454028	HDFC	446	2024-10-15	99000	debit

Query results operations

Print view Print view (with full texts) Export Display chart Create view

## Welcome Page:

The screenshot shows a web browser window with the title 'Welcome to Indian Bank'. The address bar shows 'localhost:8080 / localhost / atm'. The page content includes a heading 'Welcome To Indian Bank', a label 'Enter Your ATM Card Number:', a text input field containing '90088110', a label 'CVV:', a text input field containing '...', a label 'Account Type:' with a dropdown menu showing 'Savings', and a 'Submit' button. The Windows taskbar at the bottom shows the search bar and several open applications including Project, WhatsApp, Welco..., and Adobe... The system clock shows 10:23 AM on 11/6/2020.

Welcome To Indian Bank

Enter Your ATM Card Number:

90088110

CVV:

...

Account Type: Savings

Submit

## Option Page:

The screenshot shows a web browser window with the title 'ATM DATABASE MANAGEMENT'. The address bar shows 'localhost:8080 / option.php?cvv=345#'. The page content includes a heading 'Please Choose Your Task!', four buttons labeled 'Deposit', 'Withdraw', 'Transfer', and 'Balance Enquiry', and a 'Submit' button. The Windows taskbar at the bottom shows the search bar and several open applications including Project, WhatsApp, ATM D..., and Adobe... The system clock shows 10:24 AM on 11/6/2020.

Please Choose Your Task!

Deposit

Withdraw

Transfer

Balance Enquiry

Submit

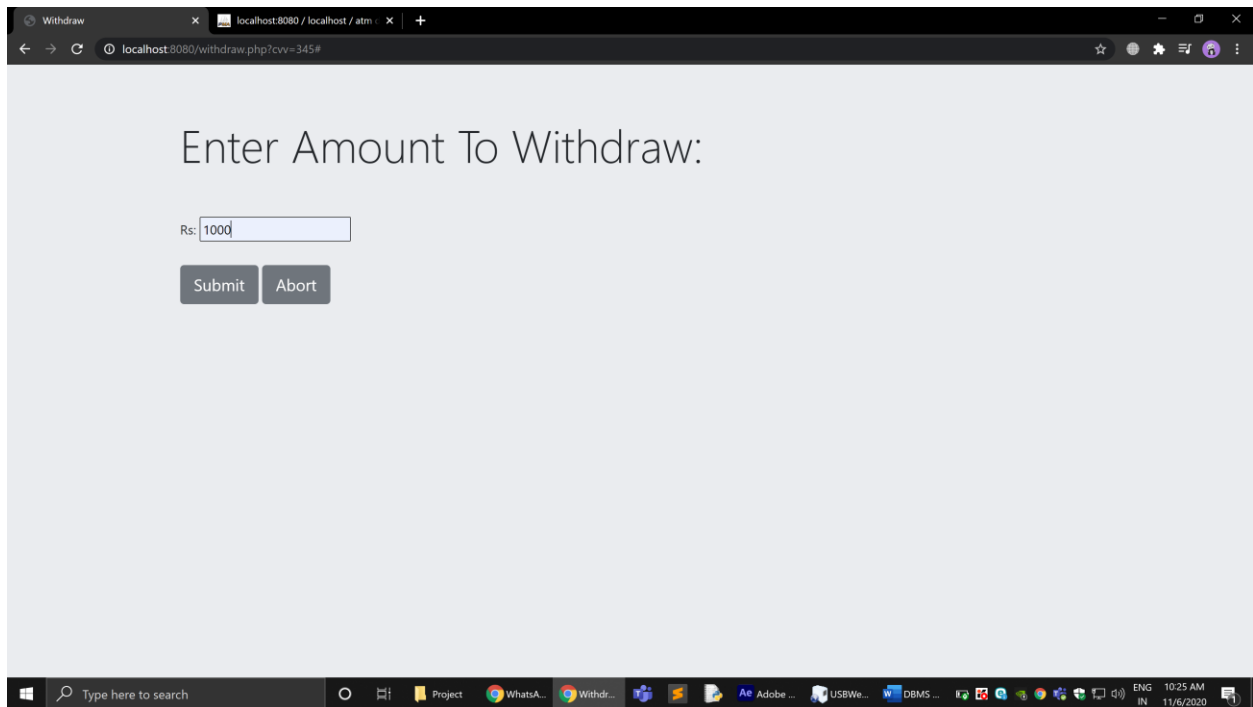
### Deposit Page:

The screenshot shows a web browser window with the title 'Deposit'. The address bar displays 'localhost8080/deposit.php?cvv=345#'. The main content area has a light gray background with the text 'Enter Amount To Deposit:' in a large, dark font. Below this text is a text input field containing 'Rs: 1000'. Underneath the input field are two buttons: 'Submit' and 'Abort'. The browser's taskbar at the bottom shows various application icons, including 'Project', 'WhatsApp...', 'Deposit...', 'Ae Adobe...', 'USBWe...', and 'DBMS ...'. The system clock in the bottom right corner indicates 'ENG 10:24 AM 11/6/2020'.

### Receipt Page:

The screenshot shows a web browser window with the title 'Receipt'. The address bar displays 'localhost8080/receipt.php?card\_no=90088110#'. The main content area has a light gray background with the text 'Indian Bank' in a large, dark font. Below this text is a horizontal line. Underneath the line, the following transaction details are listed: 'Card No: \*\*\*\*\*8110', 'Transaction Id: 59', 'Transaction type: DEPOSIT', 'Transaction status: COMPLETED', 'Amount deposited: 1000', and 'Available Amount: 44625'. At the bottom of the content area is an 'Exit' button. The browser's taskbar at the bottom shows various application icons, including 'Project', 'WhatsApp...', 'Receipt...', 'Ae Adobe...', 'USBWe...', and 'DBMS ...'. The system clock in the bottom right corner indicates 'ENG 10:24 AM 11/6/2020'.

### Withdraw Page:



The screenshot shows a web browser window with the title 'Withdraw'. The address bar displays 'localhost8080/withdraw.php?cvv=345#'. The main content area has a light gray background and contains the text 'Enter Amount To Withdraw:' in a large, dark font. Below this text is a text input field with the value '1000' and a label 'Rs:' to its left. Underneath the input field are two buttons: 'Submit' and 'Abort'. The browser's taskbar at the bottom shows various application icons, including 'Project', 'WhatsApp...', 'Withdraw...', 'Ae Adobe...', 'USBWe...', 'DBMS...', and the system clock indicating '10:25 AM 11/6/2020'.

Withdraw

localhost8080 / localhost / atm

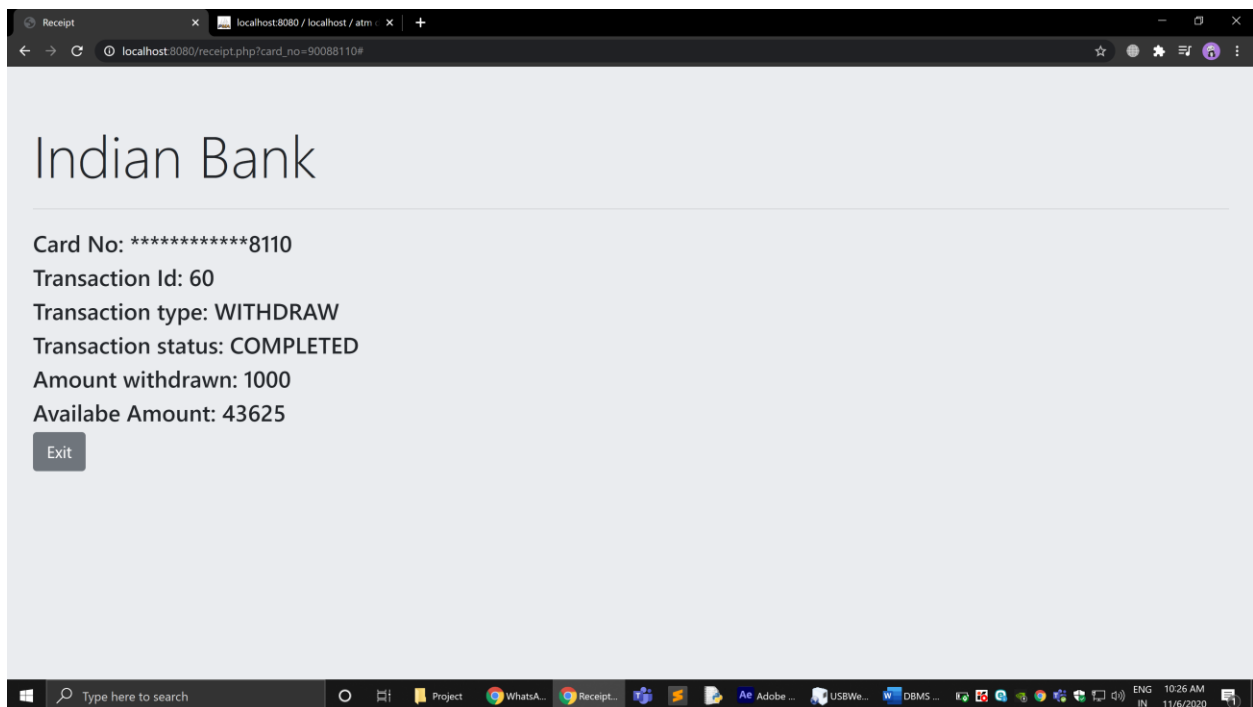
localhost8080/withdraw.php?cvv=345#

Enter Amount To Withdraw:

Rs: 1000

Submit Abort

### Receipt Page:



The screenshot shows a web browser window with the title 'Receipt'. The address bar displays 'localhost8080/receipt.php?card\_no=90088110#'. The main content area has a light gray background and features the 'Indian Bank' logo at the top. Below the logo, the following transaction details are listed: 'Card No: \*\*\*\*\*8110', 'Transaction Id: 60', 'Transaction type: WITHDRAW', 'Transaction status: COMPLETED', 'Amount withdrawn: 1000', and 'Availabe Amount: 43625'. At the bottom of the content area is an 'Exit' button. The browser's taskbar at the bottom shows application icons, including 'Project', 'WhatsApp...', 'Receipt...', 'Ae Adobe...', 'USBWe...', 'DBMS...', and the system clock indicating '10:26 AM 11/6/2020'.

Receipt

localhost8080 / localhost / atm

localhost8080/receipt.php?card\_no=90088110#

Indian Bank

Card No: \*\*\*\*\*8110

Transaction Id: 60

Transaction type: WITHDRAW

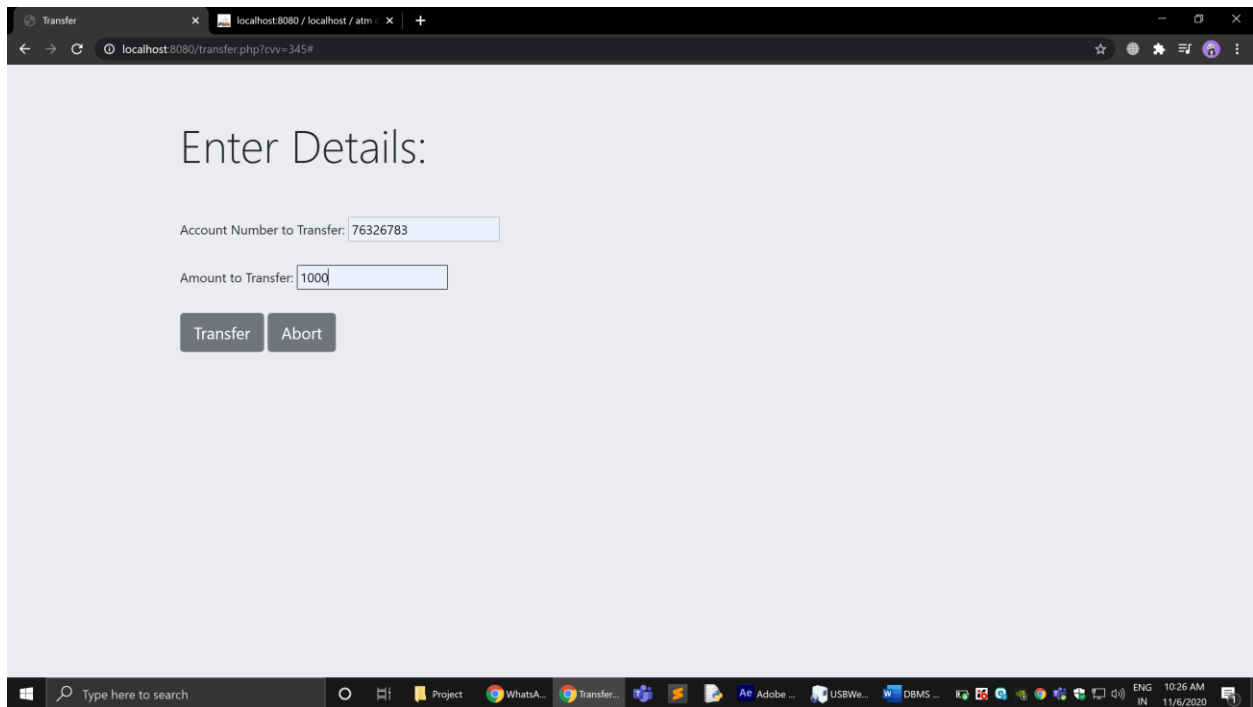
Transaction status: COMPLETED

Amount withdrawn: 1000

Availabe Amount: 43625

Exit

## Transfer Page:



The screenshot shows a web browser window with the title 'Transfer'. The address bar displays 'localhost:8080/transfer.php?cvv=345#'. The main content area has a light gray background and the heading 'Enter Details:'. Below the heading, there are two input fields: 'Account Number to Transfer:' with the value '76326783' and 'Amount to Transfer:' with the value '1000'. At the bottom of the form, there are two buttons: 'Transfer' and 'Abort'. The Windows taskbar at the bottom shows the search bar and several open applications including Project, WhatsApp, Transfer..., and Adobe... The system clock indicates 10:26 AM on 11/6/2020.

Transfer

localhost:8080 / localhost / atm

localhost:8080/transfer.php?cvv=345#

### Enter Details:

Account Number to Transfer: 76326783

Amount to Transfer: 1000

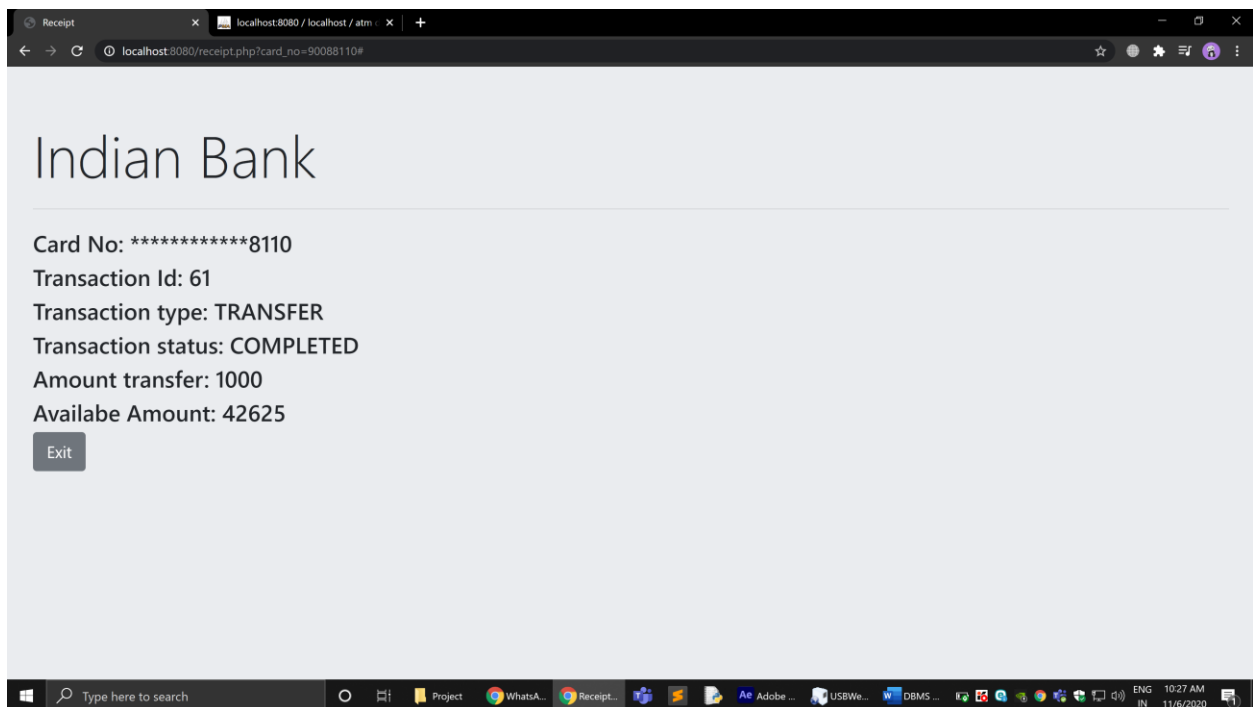
Transfer Abort

Type here to search

Project WhatsApp Transfer... Adobe... USBWe... DBMS ...

ENG 10:26 AM  
IN 11/6/2020

## Receipt Page:



The screenshot shows a web browser window with the title 'Receipt'. The address bar displays 'localhost:8080/receipt.php?card\_no=90088110#'. The main content area has a light gray background and the heading 'Indian Bank'. Below the heading, there is a list of transaction details: 'Card No: \*\*\*\*\*8110', 'Transaction Id: 61', 'Transaction type: TRANSFER', 'Transaction status: COMPLETED', 'Amount transfer: 1000', and 'Availabe Amount: 42625'. At the bottom of the receipt, there is an 'Exit' button. The Windows taskbar at the bottom shows the search bar and several open applications including Project, WhatsApp, Receipt..., and Adobe... The system clock indicates 10:27 AM on 11/6/2020.

Receipt

localhost:8080 / localhost / atm

localhost:8080/receipt.php?card\_no=90088110#

## Indian Bank

Card No: \*\*\*\*\*8110

Transaction Id: 61

Transaction type: TRANSFER

Transaction status: COMPLETED

Amount transfer: 1000

Availabe Amount: 42625

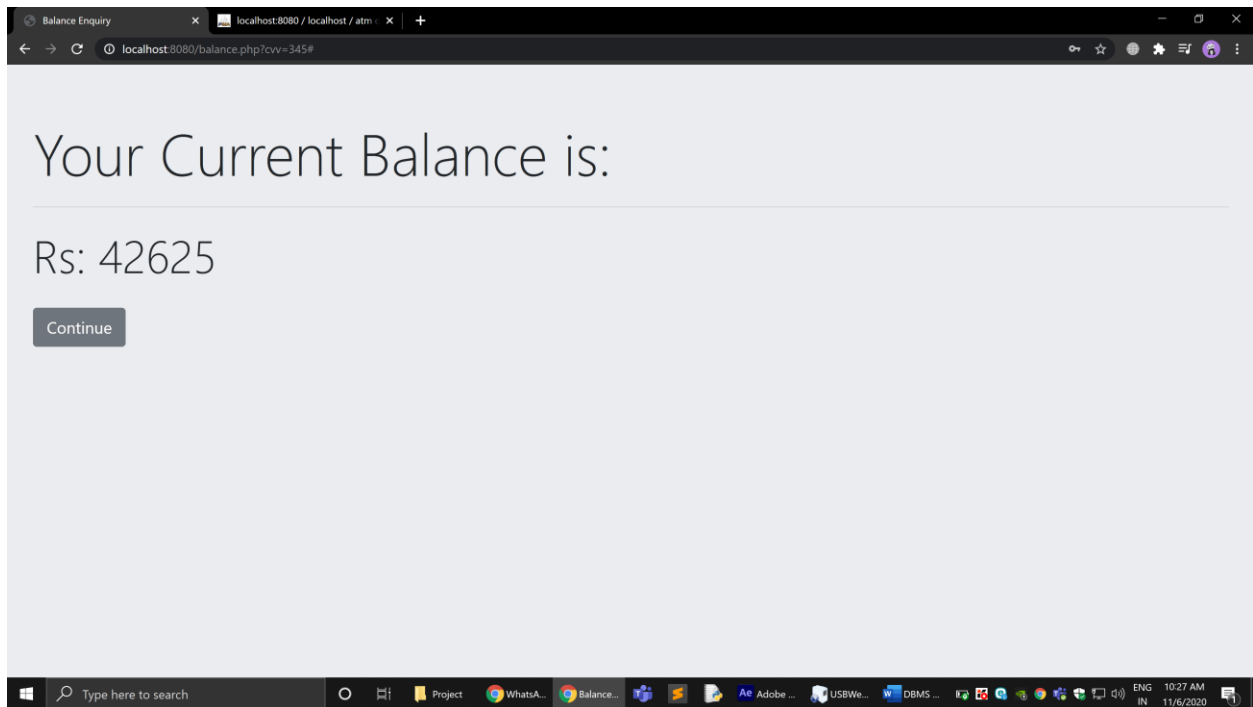
Exit

Type here to search

Project WhatsApp Receipt... Adobe... USBWe... DBMS ...

ENG 10:27 AM  
IN 11/6/2020

### Balance Enquiry Page:



### Receipt Page:

