

Thesis Advisor：[Natnael Melese]

Due Date：[Nov, 5, 2021]

Wallet online payment system

**Introduction and background**

Our system is trying to advance the old payment management system by making change in this project. As we know the world is changing number of times in day to day we hear something new but we are still using old / best system (at the time of first use) but now its outdated and it have to be updated to new system.

The Wallet payment management system is one of the most complex systems because the things it covered under the roof for the transparency among the customers. From managing the customer information, account information to the transaction happening every minute or second.

It does not only preserve the details of the transaction and other information but generates the report to further payment functions.

Thousands of payments perform millions of transactions every day and thousands of users used banking system in day to day life. If we develop advanced computer based payment system so there is no need to use old and outdated paper money as well the risk of getting robbed is reduced and maximize the clients security by confidentializing data stored automatically into Wallet server.

Wallet payment system requires authenticity and validity if a system provides these basic logics. Day to day life payment system is most useful and important thing in economical world and which is very useful to develop country as well as economic power.

**Statement of the Problem**

The complexity of this system is increased when there is an increase in number of customers and number of transactions performed. This leads to less performance of the system and the users will not choose this method since they get a new advanced payment system.

**# Problem in previous system**

* Less security of customer and time consumption
* Require more physical work
* Paper money can be pared through time
* Safety of paper money from the disaster

The world is changing and the system must be changed or updated frequently otherwise the security features will be easily breakable by hackers.

The previous system is live, the service provider and the client must be physically connected.

The user entry is more difficult even accessing data are frustrating and editing (changing) or updating user data again is very difficult.

Even though the system protocols are followed or used the computer, the paper work is still not eliminated therefore the documents might be lost in any time and place.

**Personal: -**both on each side are beneficial they can get more time therefore they can go for another work and they will be more and more productive in their field

**Objective of the project**

**General**

The main objective of this system is to create efficient and shortest pathway from customer (user) to service provider (employee).

**Specific**

Because of linking the two big objects means by creating this system we will have specific objects like

It decreases paper work so we will decrease the wastage of money for extra paper.

It will give best service time as short as possible.

User can done many transaction in every time and every.

**Benefits**

More secure information as it will give a layer of security of authentication and authorization.

It Require very less man power.

Simplify the problem of editing.

The information will be secure from the different type of disaster as there will be an automatic backup system for the customer and bank information.

Maintain data integrity Validate the manual calculations avoid the calculation error it makes accurate data.

More reliable and efficient.

More user-friendly interface.

**Why the system is needed?**

Today payment system is motor for our all activity we can’t do anything without payment service especially in the city. Due to this fact that exchanges are enormously increasing therefore we had to build the system that makes beneficial both the user and service provider.

**Database Structures**

**TABLE banks**

Bank\_ID -- UNIQUEIDENTIFIER -- Example: C345F70A-8D7B-448F-BD8E-22EF2CD2308C

Bank\_Details -- varchar(100) -- Example: Path with respect to name of file wsbnk1 [file->(Dashen Bank-Gerji-Mebrat\_Hail-Totot…)]

**TABLE ref\_device\_status**

Device\_Status\_Code -- int -- Example: 1 for active and 0 for inactive

Device\_Status\_Description -- varchar(100) -- Example: Path with respect to file’s name dvcid1 [file->[Merchant\_ID: C345F70…)]

**TABLE ref\_device\_type**

Device\_Type\_Code -- int -- Example: 1 for active and 0 for inactive

Device\_Type\_Description -- varchar(100) -- Example:

**TABLE ref\_installer\_status**

Installer\_Status\_Code -- int -- Example: 1 for active and 0 for inactive

Installer\_Status\_Description -- varchar(100) --

**TABLE ref\_transaction\_status**

Transaction\_Status\_Code int -- Example: 1 for active and 0 for inactive

Transaction\_Status\_Description -- varchar(100) --

**TABLE ref\_transaction\_type**

Transaction\_Type\_Code int -- Example: 1 for active and 0 for inactive

Transaction\_Type\_Description -- varchar(100) --

**TABLE ref\_user\_status**

User\_Status\_Code int -- Example: 1 for active and 0 for inactive

User\_Status\_Description -- varchar(100) --

**TABLE user\_type\_app\_programmer**

APU\_Ref\_Number int

APU\_First\_Name varchar(25)

APU\_Middle\_Name varchar(25)

APU\_Last\_Name varchar(25)

APU\_Age int

APU\_Sex char(1)

APU\_Permissions int

**TABLE user\_type\_sophisticated**

SoU\_Ref\_Number int

SoU\_First\_Name varchar(25)

SoU\_Middle\_Name varchar(25)

SoU\_Last\_Name varchar(25)

SoU\_Age int

SoU\_Sex char(1)

SoU\_Permissions int

**TABLE user\_type\_specialized**

SpU\_Ref\_Number int

SpU\_First\_Name varchar(25)

SpU\_Middle\_Name varchar(25)

SpU\_Last\_Name varchar(25)

SpU\_Age int

SpU\_Sex char(1)

SpU\_Permissions int

**TABLE user\_type\_stand\_alone**

SAU\_Ref\_Number int

SAU\_First\_Name varchar(25)

SAU\_Middle\_Name varchar(25)

SAU\_Last\_Name varchar(25)

SAU\_Age int

SAU\_Sex char(1)

SAU\_Permissions

**TABLE user\_type\_native**

NU\_Ref\_ID int

NU\_SubType int

NU\_Permissions

**TABLE user\_type\_native\_0**

NU0\_SubRef\_Number int

NU0\_First\_Name varchar(25)

NU0\_Middle\_Name varchar(25)

NU0\_Last\_Name varchar(25)

NU0\_Age int

NU0\_Sex char(1)

**TABLE user\_type\_native\_1**

NU1\_SubRef\_Number int

NU1\_Name varchar(25)

NU1\_Other\_Details varchar(100)

**TABLE ref\_wallet\_status**

Wallet\_Status\_Code int

Wallet\_Status\_Description varchar(100)

**TABLE ref\_wallet\_type**

Wallet\_Type\_Code int

Wallet\_Type\_Description varchar(100)

**TABLE users**

User\_ID UNIQUEIDENTIFIER

User\_Type int

User\_Status\_Code int FOREIGN KEY REFERENCES ref\_user\_status(User\_Status\_Code)

User\_Type\_Description varchar(100)

User\_Email varchar(50)

User\_Reg\_TimeStamp datetime

User\_Documentation\_Path varchar(200)

Signiture char(30)

**TABLE users\_profile\_pic**

Pic\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1)

User\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES users(USER\_ID)

Pic\_Path varchar(100)

**TABLE users\_profile\_log**

Log\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1),

User\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES users(USER\_ID)

Last\_Login datetime

MAC\_Address decimal(10,0)

**TABLE sessions**

S\_ID varchar(128)

Host\_Name varchar(128)

Time\_Stamp datetime

Session LONGBLOB

User\_ID UNIQUEIDENTIFIER

**TABLE wallet**

Wallet\_ID UNIQUEIDENTIFIER

Wallet\_User\_Name varchar(25)

Wallet\_Password varchar(128)

Wallet\_Signiture UNIQUEIDENTIFIER

Wallet\_Reg\_TimeStamp datetime

Wallet\_Validity\_Number int FOREIGN KEY REFERENCES wallet\_validity(Wallet\_Validity\_Number)

Wallet\_Type\_Code int FOREIGN KEY REFERENCES ref\_wallet\_type(Wallet\_Type\_Code)

Wallet\_Status\_Code int FOREIGN KEY REFERENCES ref\_wallet\_status(Wallet\_Status\_Code)

User\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES users(User\_ID)

Bank\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES banks(Bank\_ID)

DUNS\_Number UNIQUEIDENTIFIER FOREIGN KEY REFERENCES addresses(DUNS\_Number)

**TABLE addresses**

DUNS\_Number UNIQUEIDENTIFIER

Cage\_Code UNIQUEIDENTIFIER

Wallet\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES wallet(Wallet\_ID)

Physical\_Address varchar(25)

Mailing\_Address varchar(25)

Cellphone\_1 int

Cellphone\_2 int

Land\_line\_phone int

Other\_Details varchar(100)

**TABLE wallet\_history**

Wallet\_History\_Number int

Wallet\_Ballance decimal(10,0)

Transaction\_Number int FOREIGN KEY REFERENCES transactions(Transaction\_Number)

**TABLE wallet\_validity**

Wallet\_Validity\_Number int

Wallet\_Registration\_Purpose varchar(50)

Wallet\_Record\_Status char(1)

Wallet\_Business\_Start\_Date datetime

Wallet\_Registration\_Date datetime

Wallet\_Expiration\_Date datetime

Wallet\_Update\_Date datetime

Wallet\_Activation\_Date datetime

Wallet\_Fiscal\_Year\_End datetime

**TABLE authentification**

Authentification\_ID UNIQUEIDENTIFIER

Wallet\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES wallet(Wallet\_ID)

Authentification\_Code int

**TABLE installer**

Installer\_ID UNIQUEIDENTIFIER

Installer\_FName varchar(25)

Installer\_MName varchar(25)

Installer\_LName varchar(25)

Installer\_Age int

Installer\_Sex char(1)

Installer\_Salary decimal(10,0)

Installer\_Qualification\_Documentation varchar(100)

Installer\_Position varchar(25)

Installer\_Cellphone\_1 int

Installer\_Cellphone\_2 int

Installer\_Status\_Code int FOREIGN KEY REFERENCES ref\_installer\_status(Installer\_Status\_Code)

**TABLE installer\_profile\_pic**

Pic\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1)

Installer\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES installer(Installer\_ID)

Pic\_Path varchar(100)

**TABLE merchant**

Merchant\_ID UNIQUEIDENTIFIER PRIMARY KEY NOT NULL default NEWID(),

User\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES users(User\_ID) NULL, -- FK

Merchant\_UserName varchar(25) NOT NULL,

Merchant\_Description varchar(100) NOT NULL

**TABLE merchant\_log**

Log\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1),

Merchant\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES merchant(Merchant\_ID)

Wallet\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES wallet(Wallet\_ID)

Log\_Success int

**TABLE transactions**

Transaction\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1),

Wallet\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES wallet(Wallet\_ID)

Merchant\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES merchant(Merchant\_ID)

Transaction\_Type\_Code int FOREIGN KEY REFERENCES ref\_transaction\_type(Transaction\_Type\_Code)

Transaction\_Status\_Code int FOREIGN KEY REFERENCES ref\_transaction\_status(Transaction\_Status\_Code)

Transaction\_Amount decimal(10,0) NOT NULL,

Transaction\_TimeStamp datetime NOT NULL DEFAULT(CURRENT\_TIMESTAMP)

Transaction\_QR\_Gen UNIQUEIDENTIFIER

Transaction\_Success int

**TABLE device**

Device\_ID UNIQUEIDENTIFIER PRIMARY KEY

QR\_Code UNIQUEIDENTIFIER

Device\_Serial\_Key UNIQUEIDENTIFIER

Device\_Warranty\_Expire\_Date datetime

Device\_Purchased datetime

Device\_Description varchar(100)

**TABLE device\_history**

Log\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1)

Device\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES device(Device\_ID)

DUNS\_Number UNIQUEIDENTIFIER FOREIGN KEY REFERENCES addresses(DUNS\_Number)

Device\_Type\_Code int FOREIGN KEY REFERENCES ref\_device\_type(Device\_Type\_Code)

Device\_Status\_Code int FOREIGN KEY REFERENCES ref\_device\_status(Device\_Status\_Code)

Installer\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES installer(Installer\_ID)

Merchant\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES merchant(Merchant\_ID)

Transaction\_Number int FOREIGN KEY REFERENCES transactions(Transaction\_Number)

Wallet\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES wallet(Wallet\_ID)

Log\_Success int

**TABLE item**

Item\_ID UNIQUEIDENTIFIER

Item\_Description varchar(50)

Item\_Characterstics varchar(50)

Item\_Price decimal(10,0)

Item\_QR\_Code UNIQUEIDENTIFIER

Item\_Image1 varchar(100)

Item\_Image2 varchar(100)

Item\_Image3 varchar(100)

**TABLE item\_log**

Log\_Number int PRIMARY KEY NOT NULL IDENTITY(1,1)

Item\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES item(Item\_ID)

Wallet\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES wallet(Wallet\_ID)

Merchant\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES merchant(Merchant\_ID)

Transaction\_Number int FOREIGN KEY REFERENCES transactions(Transaction\_Number)

Device\_ID UNIQUEIDENTIFIER FOREIGN KEY REFERENCES device(Device\_ID)

Log\_Success int