

# Toward a Free Platform for Financial Islamic Instruments: Analysis, Design and Development Special Case "MURABAHA"

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**Abstract**—the aim of this study is to analyze the information system in Islamic bank by using Unified Modeling Language (UML). The major objective is to prepare the background for all actors working in Islamic bank to understand and use this free platform specially MURABAHA act.

**Index Terms:** Unified modeling language (UML), Islamic economy, Murabaha, database, Structured query Language (SQL), ASP.NET language.

## I. INTRODUCTION

Now in all Islamic country, government and civil association adopted and encourage financials solutions of Islamic banking, more we remark that many traditional banks use Islamic financials instruments in some Islamic country.

The conventionnelle finance can provide some financial crisis, like 2007–08 crisis, which considered by many economists to have been the worst financial crisis since the Great Depression of the 1930s.

The crisis means a period of low growth and is characterized by loss of significant value financial assets. During this period, Islamic banks show growth of 15% [17]. And in USA we remark that there are a Exposition of immobilizers credits, accompanied by a massive use of securitization, but in Islamic economy credit with interest rate and securitization are prohibited and negatively reflected on the economic life of the citizen, who became a robbery depends on these institutions. As well as the lack of clarity of transactions and fraud for ordinary customers.

## II. ISLAMIC VS. CONVENTIONAL FINANCING

In conventional financing, for property loans, borrowers pay an interest on the outstanding principal amount. Interest rates can be a fixed rate or based on a floating rate (e.g. BLR, KLIBOR).

Payment is made over a set tenure by installments. A portion of each installment paid goes towards servicing the interest, while the remainder goes towards paying down the principal.

Islamic Financing avoids interest-based transactions and instead introduces the concept of buying something on the borrower's behalf, and selling it back to the borrower at profit.

### A. Benefits of Islamic Financing over Conventional Financing

- The main difference between Islamic and conventional finance is that the Islamic bank shares profit and loss with its depositors.
- Islamic PLS (shares profit and loss) principle creates the relationship of financial trust and partnership between borrower, lender, and intermediary.
- Uncertainty in contracts – there is a prohibition on the sale of items whose existence or characteristics are not certain, and upon contractual terms that are ambiguous or unclear. This may mean that certain contracts containing obligations to insure another person or to grant an option to purchase an asset may be unacceptable [4] from the new index.
- An Islamic bank is essentially a partner with its depositors, on the one side, and also a partner with entrepreneurs, on the other side, when employing depositors' funds in productive direct investment as compared to a conventional bank which is basically a borrower and lender of funds.[5].

### B. Benefits of Conventional Financing over Islamic Financing

- For Conventional loans, if a borrower alters the terms of the finance (E.g. Increase the facility amount), the Loan Facility Agreement would only need to be up-stamped. For Islamic financing, a new Sale and Buy-back Agreement (BBA) needs to be drawn up, making it more expensive. [5].
- Islamic financing have difficulty in restructuring or refinancing in the case of default

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- Your costs for early settlements, late payments or defaults are more transparent in the contract as compared to Islamic financing.

C. Main differences between the Conventional Financing and Islamic Financing

We refer to [5] and [16] to explain and summarize (see the following table) the main differences between Conventional Financing and Islamic Financing

Characteristics	Islamic Banking System	Conventional Banking System
<i>Balance Between Moral and Material Requirement</i>	The requirement to finance physical assets which banks usually take ownership	Excessive use of credit and debt financing can lead to financial problems. ***
<i>Equity financing with risk to capital</i>	Islamic Bank provides equity capital to a project or venture. Losses are shared on the basis of equity participation while profits are shared on a pre-agreed ratio.	Not generally available through commercial banks, but through venture capital companies and investment banks.
<i>Contractual terms</i>	Buyer , seller, Agent, Fund Provider, Entrepreneur	Lender and Borrower
<i>Event of default</i>	bank can only classify default on the specific financing , as other financing facilities held by the customers should be independent contracts	bank can classify all the customer's facilities as default when one of the loan is defaulted by customer
<i>Profit and Loss Sharing</i>	All transactions are based on this principle. Returns are variable, dependent on bank performance and not guaranteed. But the risks are managed to ensure better returns than deposit accounts. Consumers can participate in the profit upside i.e. in a more equitable way than receiving a predetermined return.	This principle is not applied. Returns to depositors are irrespective of bank performance and profitability. The customer as depositor is like a lender and does not share in the success of the enterprise beyond receiving a fixed rate of predetermined interest.

III. UNIFIED MODELING LANGUAGE (UML)

First appeared in the 1990's as an industry standard for software modeling and design. UML can use in other processes in the scientific and business worlds. UML help the developers and analysts to communicate and share models and software with other people more effectively.

The use of UML as a tool for defining the structure of a system is very useful way to manage large, complex

systems. Having a clearly visible structure makes it easy to introduce new people to an existing project.

A. Explication of some UML diagrams

A.1 UML Class Diagram

UML Class Diagram Shows structure of the designed system, subsystem or component, is the main idea of object oriented modeling. Each class characterized by attributes and operations. We can find an association between two classes.

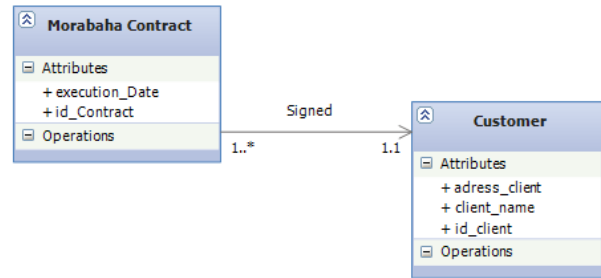


Figure. 1. Class Diagram Example

In the example above a customer is characterized by id, name and address the same for MORABAHA contract characterized by id and execution date. The association between two classes named Signed.

A.2 UML Use Case Diagram

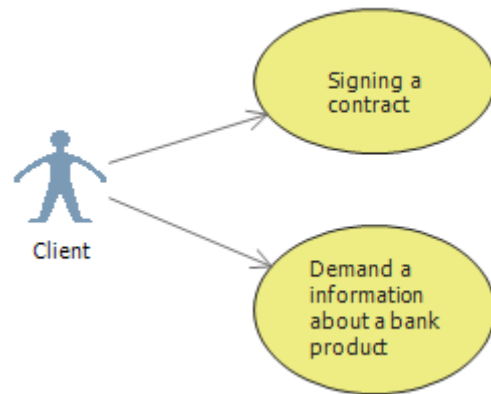


Figure. 2. Use Case Diagram Example

Describes a set of actions (use cases) , that some system or systems (**subject**) should or can perform in collaboration with one or more external users of the system (actors) to provide some observable and valuable results to the actors or other stakeholders of the system(s) [3].

A.3 UML Activity Diagram

Shows sequence and conditions for coordinating behaviors. Describe all the process of a given task.

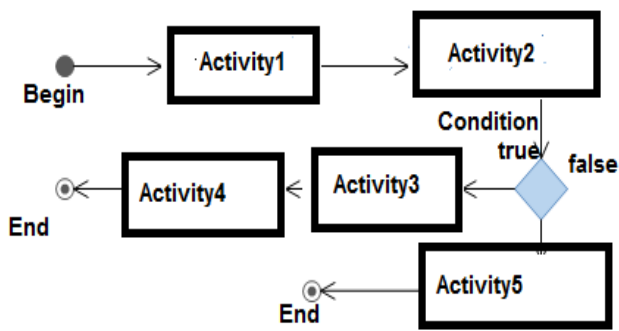


Figure. 3. Use Case Diagram Example

The above diagram show that a client can demand information about a bank product and can also signing a contract.

#### IV. EXPLAIN AND ANALYZE THE MURABAHA CONTRACT

We will describe and summarize the MURABAHA contract, to facilitate the work of systems analysts and software developers, depending on the set of references, especially the reference number 1.

##### A. MURABAHA

Sale on profit. Technically a contract of sale in which the seller declares his cost and profit. This has been adopted as a mode of financing by a number of Islamic banks. As a financing technique, it involves a request by the client to the bank to purchase a certain item for him. The bank does that for a definite profit over the cost which is settled in advance. Some people have questioned the legality of this financing technique because of its similarity to riba or interest [4].

A contract of sale between the bank and its client for the sale of goods at a price plus an agreed profit margin for the bank. The contract involves the purchase of goods by the bank which then sells them to the client at an agreed mark-up. Repayment is usually in installments [4]

The seller is obliged to tell the buyer the price and the profit he is making. It has been estimated that 80 to 90 percent of financial operations of some Islamic banks belong to this category.

MURABAHA is a form of sales. The price of the item is price of purchase plus an Agreed profit. Shows Lease side if, for example, premiums are used, and there is a difference between the price of the item upon delivery and when-term solutions, and he says the jurists " for futures luck in the price " and morally appropriate that this increase is estimated by the rate of return from investments realized by the seller.

The price of a product is price of purchase plus profit known Agreed. Shows Lease side if, for example, **premiums** are used, and there is a difference between the price of the item upon delivery and end of contract, and he says the jurists " forward contract merited price augmentation " and morally this increase is estimated by

the rate of return from investments realized by the **seller**. Murabaha is the most contracts practiced by Islamic banks.

We focus in situation where the product is financing by the Islamic bank. Scholars believe that taking a **deposit** in MURABAHA transactions is permissible provided that the bank is not entitled to be deducted from the deposit but only actual harm.

##### B. Terms Of MURABAHA

There are a number of requirements for this transaction to be a real transaction to meet the Islamic standards of a legal sale.

We focus in situation where the product is financing by the Islamic bank. Scholars believe that taking a **deposit** in MURABAHA transactions is permissible provided that the bank is not entitled to be deducted from the deposit but only actual harm.

##### A. Terms Of MURABAHA

- The subject of sale must exist at the time of the sale.
- The subject matter should be in the ownership of the seller at the time of sale. If the seller sells something that he himself has not acquired, then the sale becomes void.
- The sale must be instant and absolute. Thus a sale attributed to a future date or a sale contingent on a future event is void.
- The subject of sale must be specifically known and identified to the buyer.
- The delivery of the sold commodity to the buyer must be certain and should not depend on a contingency or chance.
- The certainty of price is a necessary condition for the validity of the sale. If the price is uncertain, the sale is void.
- The sale must be unconditional. A conditional sale is invalid unless the condition is recognized as a part of the transaction according to the usage of the trade.

B. Analyze The MURABAHA CONTRACT BY UML Diagrams

A. Use Case For MURABAHA CONTRACT

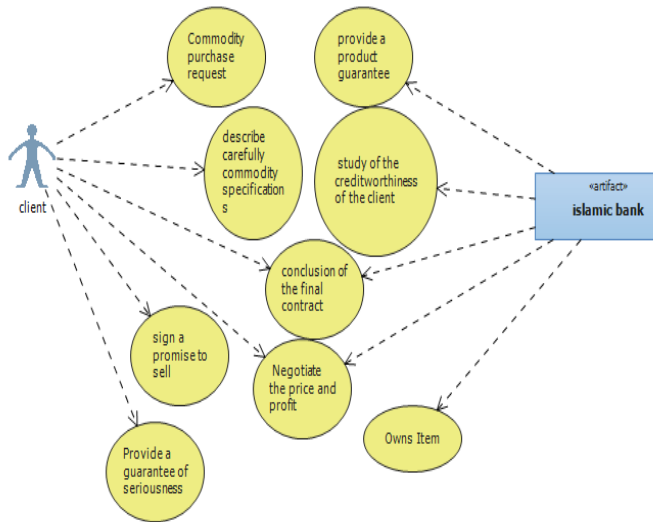


Figure. 4. Use Case Diagram for MURABAHA transaction

From the previous description we can deduce that the major actor is the client which can demand the purchase of a product, describe the product, negotiate the profit, and request the detail of the purchase operation. The bank begins study the creditworthiness of the client, by requesting a range of personal and financial documents.

B. Activity Diagram For MURABAHA

The MURABAHA is a mode of finance operates in the following way: The client approaches an Islamic bank to get finance in order to purchase a specific commodity. An interest-based bank would lend the money on interest to this customer. The customer would go and buy the required commodity from the market. This option is not available to the Islamic bank, as it does not operate on the basis of interest. It can not lend the money on interest. It can not lend money with zero interest rate, as it has to make some money to stay in the business.

MURABAHA transaction is to be completed in two stages

- The client requests the bank to undertake a MURABAHA transaction and promises to buy commodity specified by him, if the bank acquires the same commodity.
- Of course, the promise is not a legal binding. The client may go back on his promise and the bank risks the loss of the amount it has spent. (Difference between Islamic bank and interest-based bank).

The following diagram explains in details all the process.

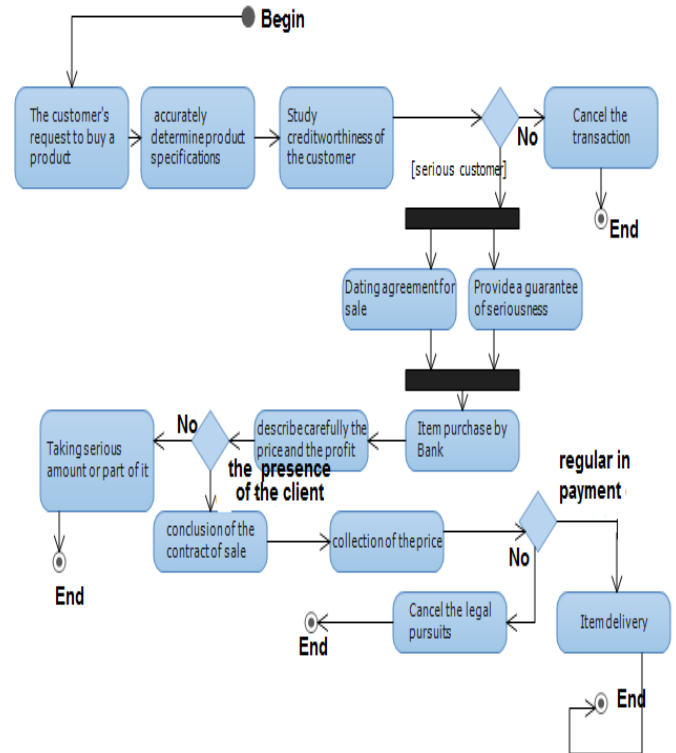


Figure.5. Activity Diagram For Murabaha Transaction

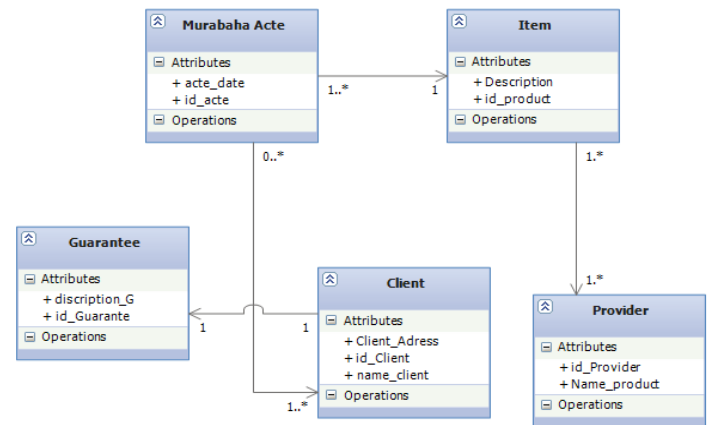


Figure. 6. Class Diagram for Murabaha transaction

C. The Data Base Of MURABAHA ACT

The establishment of the database is the most important step process for programming applications. As they are easily extracted from class diagram. To make an open source application, the reader can use the following source code:

```

• create table Murabaha_act
(
act_id int primary key,
acte_date datetime,
id_product int
foreign key references
product(product_id)

```

```

)
    • create table Provider
(
ref_Provider int primary key,
Provider_name varchar(20)
)
    • create table client
(
client_id int primary key,
client_name varchar(20),
client_Adress varchar(30)
)
    • create table guarentie
(
guarentie_id int primary key,
guarentie_description varchar(30),
id_client int
foreign key references
client (client_id)
)
    • create table Product_Provider
(
ref_Provider int
foreign key references
Provider(ref_Provider),
product_id int
foreign key references
Product(product_id),
primary key(ref_Provider,product_id)
)
    • create table Product
(
product_id int primary key,
product_name varchar(20)
)
    • create table acte_client
(
client_id int
foreign key references
client(client_id),
acte_id int
foreign key references
murabaha_act(act_id ),
primary key(client_id,acte_id)

```

#### D. Programming MURABAHA Contract

We write only some portion of the application, using **ASP.NET** and **ADO.NET**

##### A. Adding A New Client in The Database

```

try
{
SQLConnection con = new SQLConnection
("server=.;database = morabaha_db;integrated
security=true;");
Con.Open();
String req="insert into client values (@a,@b,@c)";

```

```

SQLParameter p1=new
SQLParameter("@a",int.Parse(T1.Text));
SQLParameter p2=new SQLParameter("@b",
T2.Text);
SQLParameter p3=new SQLParameter("@c",
T3.Text);
SqlCommand cmd = new SqlCommand(req,con);
cmd.Parameters.Add(p1);
cmd.Parameters.Add(p2);
cmd.Parameters.Add(p3);
cmd.ExecuteNonQuery();
Con.Open();
{
catch(SQLException ex )
{
Response.Write(ex.message);
}
}

```

Figure. 7. User Interface to add a new client

##### B. Finding A Client In The Database

```

try
{
SQLConnection con = new SQLConnection
("server=.;database = morabaha_db;integrated
security=true;");
Con.Open();
String req="select * from client where
numclient=@a";
SQLParameter p1=new
SQLParameter("@a",int.Parse(T1.Text));
SqlCommand cmd = new SqlCommand(req,con);
cmd.Parameters.Add(p1);
SQLDataReader dr=cmd.ExecuteReader();
While(dr.Read()==true){
T2.Text=dr.getValue(1).ToString();
T3.Text= dr.getValue(2).ToString();
}
Dr.Close();
Con.Open();
{

```

```
catch(SQLException ex )
{
Response.Write(ex.message);
}
```

Figure.8. User Interface to find a client

## CONCLUSION

We give in this article the analyze, database conception and development of one act (MURABAHA). We can follow the same step to analyze other act like “BAYEE A SSALM”, “MOGHARASSA”...

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## BIOGRAPHIES



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