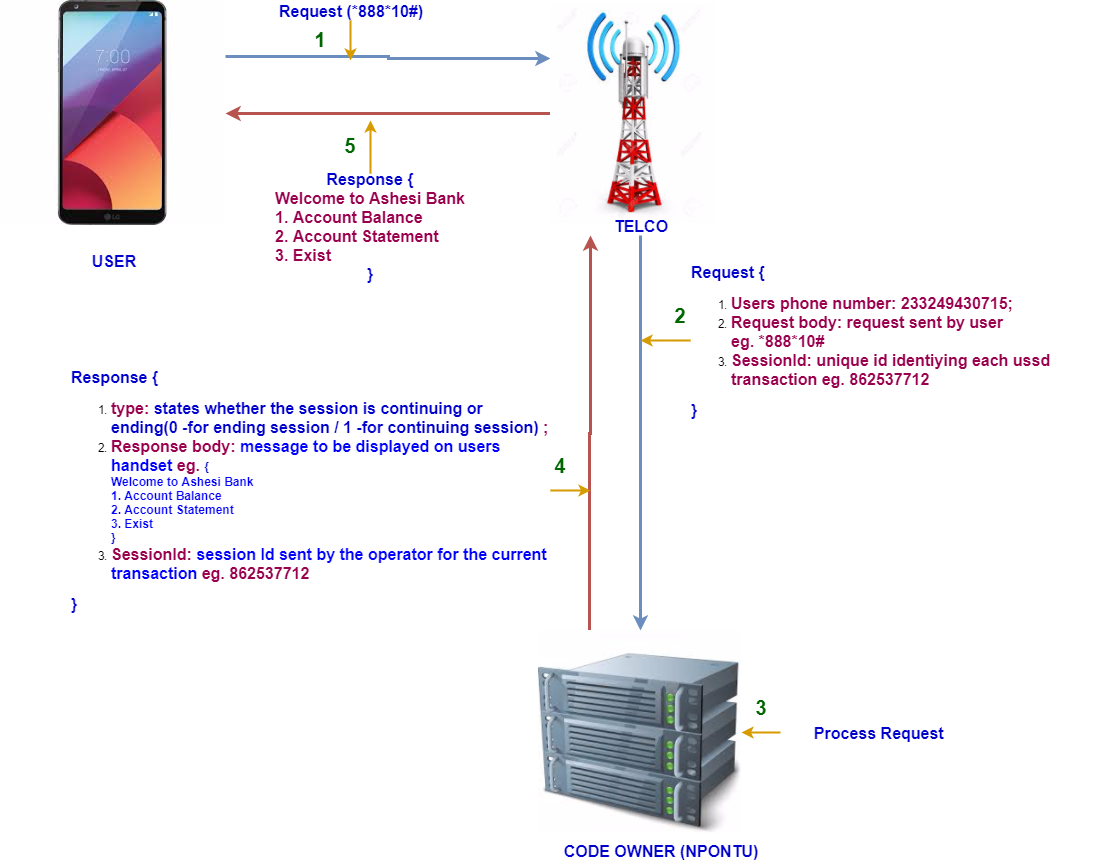
CREATE USSD SERVICE

* **Server IP:** 144.76.58.179
* **User:** Your assigned username
* **Pass:** Your password



1. **CONNECT TO MYSQL**

**mysql -u root –p**

**password: Ashesi@123456789**

1. **CREATE DATABASE USING YOUR EXTENSION AS THE DATABASE NAME**

**CREATE DATABASE *your assigned number***

1. **CREATE TABLE FOR MANAGING SESSIONS**

**CREATE TABLE `sessionmanager` (**

**`msisdn` varchar(20) NOT NULL,**

**`transaction\_type` varchar(1000) DEFAULT NULL,**

**PRIMARY KEY (`msisdn`) );**

**Note: Number of T columns will be determined by the number of service levels as explained in point 8b.**

1. **ENTER APACHE HOME DIRECTORY**

**cd /var/www/html/**

1. **CREATE YOUR EXTENSION DIRECTORY AND ENTER IT**

**mkdir *your assigned number***

**cd *your assigned number***

1. **CREATE YOUR DATABASE CONNECTION FILE**

**vi Database.php**

**Content of the database connection file (Considering the details of the database created in point 2)**

**#REPLACE dbname=10 with dbname=your\_database\_name**

**<?php***/\*\*  
\*Class to create and issue database connections  
\*This would force the system to use an available database instance or create a new one  
\*\*/***class** Database{  
 **private static** *$dbh* = **NULL**;  
 **private $conn** =**null**;  
  
 **private function** \_\_construct(){   
   
 *//$this->conn = new*

$this->**conn** = **new** PDO(**"mysql:host=localhost;port=3306;dbname=10"**,**"root"**,**"Ashesi@123456789"**);  
 $this->**conn**->setAttribute(PDO::***ATTR\_ERRMODE***, PDO::***ERRMODE\_EXCEPTION***);  
   
 }  
  
 */\*\*  
 \*Method to get a database instance or create one if none is to be found  
 \*****@param*** *void  
 \*****@return*** *database connection instance  
 \*/* **public static function** getInstance(){  
 **if**(**NULL** === **self**::*$dbh*){  
 **self**::*$dbh* = (**new** Database())->**conn**;  
 }  
 **return self**::*$dbh*;  
 }  
}

1. **CREATE YOUR BASIC FUNCTIONS PAGE**

**vi ApplicationFunctions.php**

**Content of the functions file**

**<?php**

**Require 'Database.php'**;

*/\*\**

*\*This class contains core logic of the USSD application*

*\**

*\*\*/*

**class** ApplicationFunctions{

**public function** \_\_construct(){

}

**public function** \_\_destruct(){

}

**public function** IdentifyUser($msisdn)

{

$db = Database::*getInstance*();

**try**

{

$stmt = $db->prepare(**"insert into sessionmanager(msisdn) values (:msisdn)"**);

$stmt->bindParam(**":msisdn"**,$msisdn);

$stmt->execute();

**if**($stmt->rowCount() > 0)

{

**return TRUE**;

}

} **catch** (PDOException $e) {

*#$e->getMessage();*

**return FALSE**;

}

}

*/\*\**

*\*Method to delete a user session*

*\*****@param*** *msisdn*

*\*****@return*** *Boolean*

*\*/*

**public function** deleteSession($msisdn)

{

$db = Database::*getInstance*();

**try**

{

$stmt = $db->prepare(**"Delete FROM sessionmanager where msisdn= :msisdn"**);

$stmt->bindParam(**":msisdn"**,$msisdn);

$stmt->execute();

**if**($stmt->rowCount() > 0)

{

**return TRUE**;

}

} **catch** (PDOException $e) {

*#echo $e->getMessage();*

**return FALSE**;

}

}

*/\*\**

*\*Method to reset a users session to the first case. (Delete all of the users records except his msisdn)*

*\*****@param*** *msisdn*

*\*****@return*** *Boolean*

*\*/*

**public function** deleteAllSession($msisdn)

{

$db = Database::*getInstance*();

**try**

{

$stmt = $db->prepare(**"UPDATE sessionmanager SET transaction\_type = NULL where msisdn= :msisdn"**);

$stmt->bindParam(**":msisdn"**,$msisdn);

$stmt->execute();

**if**($stmt->rowCount() > 0)

{

**return TRUE**;

}

} **catch** (PDOException $e) {

*#echo $e->getMessage();*

**return FALSE**;

}

}

*/\*\**

*\*Method to update user session with the actual type of transaction or details of the transaction \*currently being held*

*\*****@param*** *msisdn, collumn, transaction type*

*\*****@param*** *Boolean*

*\*\*/*

**public function** UpdateTransactionType($msisdn, $col, $trans\_type)

{

$db = Database::*getInstance*();

**try**

{

$stmt = $db->prepare(**"update sessionmanager set "** .$col. **" = :trans\_type where msisdn = :msisdn"**);

$params = **array**(**":msisdn"**=>$msisdn,**":trans\_type"**=>$trans\_type);

$stmt->execute($params);

**if**($stmt->rowCount() > 0)

{

**return true**;

}

} **catch** (PDOException $e) {

*#echo $e->getMessage();*

**return FALSE**;

}

}

*/\*\**

*\*Method to query specific details from the session manager. (Get value held in a specific column)*

*\*****@param*** *msisdn, specific column to query*

*\*****@return*** *string*

*\*/*

**public function** GetTransactionType($msisdn, $col)

{

$db = Database::*getInstance*();

**try**

{

$stmt = $db->prepare(**"SELECT "** .$col. **" FROM sessionmanager WHERE msisdn = :msisdn"**);

$stmt->bindParam(**":msisdn"**,$msisdn);

$stmt->execute();

$res = $stmt->fetch(PDO::***FETCH\_ASSOC***);

**if**($res !== **FALSE**)

{

**return** $res[$col];

}

} **catch** (PDOException $e) {

*#echo $e->getMessage();*

**return NULL**;

}

}

*/\*\**

*\*Method to query users session state. checking if the user has an existing session and if so the session count.*

*\*****@param*** *msisdn, specific column to query*

*\*****@return*** *string*

*\*/*

**public function** sessionManager($msisdn)

{

$db = Database::*getInstance*();

**try**

{

$stmt = $db->prepare(**"SELECT (***COUNT***(msisdn)+** *COUNT***(transaction\_type)) AS counter FROM sessionmanager WHERE msisdn = :msisdn"**);

$stmt->bindParam(**":msisdn"**,$msisdn);

$stmt->execute();

$res = $stmt->fetch(PDO::***FETCH\_ASSOC***);

**if**($res !== **FALSE**)

{

**return** $res[**'counter'**];

}

} **catch** (PDOException $e) {

*#echo $e->getMessage();*

**return NULL**;

}

}

}

1. **PRODUCE LOGICAL FLOW FOR THE SERVICE** 
   1. **Flow**

Welcome to Ashesi Bank

* + - 1. Account Balance **(reply on select: “Your account balance is …”)**
      2. Account Statement

1. Current Account **(reply on select: “Your current account statement is ….”)**
2. Savings Account **(reply on select: “Your savings account statement is ….”)**
3. Exit
   * + 1. Exit**(reply on select: “Thank you for using Ashesi bank service”)**
   1. **PROCESSING LEVELS (Level number = Switch case value)**
      1. **LEVEL 1**
         1. Account Balance
         2. Account Statement
         3. Exit
      2. **LEVEL 2**
         1. Current Account
         2. Savings Account
         3. Exit
4. **REQUEST PROCESSING STEPS**
   1. Check if user has an existing session (sessionManager($msisdn)
5. If user has an no existing session
   * 1. Create new session for user (IdentifyUser($msisdn))
     2. Return welcome menu to user

Welcome to Ashesi Bank

* + - 1. Account Balance
      2. Account Statement
      3. Exit

1. If user has an existing session
   * 1. Check session count (IdentifyUser($msisdn))
     2. Value of session count = switch case value
     3. **If session position has sub levels**
        1. Update transaction type field (UpdateTransactionType($msisdn, **"transaction\_type"**, **'STATEMENT'**))
        2. Return response message
2. Current Account
3. Savings Account
4. Exit
   * 1. **If session position has no sub levels**
        1. Return response message (“Your savings account statement is …..”)
        2. Delete users session (deleteSession($msisdn))
5. **CREATE YOUR SERVICE SCRIPT PAGE**

**vi 10.php**

**#note: Values passed from operator to your script. (Values are passed as a GET request):**

1. **Number (Users phone number)**
2. **Body (Request sent by user)**
3. **SessionID (Unique ID for tracking each transaction)**

**#note: Values returned to the operator from your script must be concatenated with a ‘|’ in the format:**

1. **Number (phone number sent in request)**
2. **reply message (message to be displayed on users handset)**
3. **SessionID (session id sent in request)**
4. **Type (States whether the session should end or continue)**
   1. **0 (for end session)**
   2. **1 (for continue session)**

**Eg. 233249430715|Welcome to Ashesi |278261737882|1**

**Content of the service script**

**<?php**

*//DISPLAY PHP ERRORS*

*// error\_reporting(0);*

*error\_reporting*(***E\_ALL***); *ini\_set*(**'display\_errors'**, 1);

*//INCLUDE APPLICATIONS SCRIPT*

**include 'ApplicationFunctions.php'**;

*//DEFINE CURRENT DATE*

*date\_default\_timezone\_set*(**'GMT'**);

$time = *date*(**'Y-m-d H:i:s'**);

$ussd = **new** ApplicationFunctions();

$msisdn = $\_GET[**'number'**];

$data = $\_GET[**'body'**];

$sessionID = $\_GET[**'sessionID'**];

*//FUNCTION TO CHECK IF SESSION EXISTS AND THE SESSION COUNT*

*/\*GET SESSION STATE OF THE USER\*/*

$sess = *intval*($ussd -> sessionManager($msisdn));

*//CREATING LOG*

$write = $time . **"|Request|"** . $msisdn . **"|"** . $sessionID . **"|"** . $data .**"|"**.$sess. PHP\_EOL;

*file\_put\_contents*(**'ussd\_access.log'**, $write, ***FILE\_APPEND***);

**if** ($sess == **"0"**) {*#NO SESSION WAS FOUND -> DISPLAY WELCOME MENU*

$ussd -> IdentifyUser($msisdn);

$reply = **"Welcome to Ashesi Bank"** . **"\r\n"** .**"1. Account Balance"** . **"\r\n"** .**"2. Account Statement"** . **"\r\n"** .**"3. Exit"**;

$type = **"1"**;

} **else** {

**switch**($sess) {

**case** 1 : *#SESSION COUNT =1 #SERVICE LEVEL 1*

**if** ($data==**'1'**){

$reply = **"Your account balance is GHS 25.90 "**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}**elseif** ($data==**'2'**){

$reply = **"Account Statement"** . **"\r\n"** .**"1. Current Account"** . **"\r\n"** .**"2. Savings Account"** . **"\r\n"** .**"3. Exit"**;

$type = **"1"**;

$ussd -> UpdateTransactionType($msisdn, **"transaction\_type"**, **'STATEMENT'**);

}**elseif** ($data==**'3'**){

$reply = **"Thank you for accessing Ashesi Bank mobile services"**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}**else**{

$reply = **"Invalid Option Selected"**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}

**break**;

**case** 2 : *#SESSION COUNT =2 #SERVICE LEVEL 2*

**if** ($data==**'1'**){

$reply = **"Your current account statement is ..... "**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}**elseif** ($data==**'2'**){

$reply = **"Your savings account statement is ..... "**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}**elseif** ($data==**'3'**){

$reply = **"Thank you for accessing Ashesi Bank mobile services"**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}**else**{

$reply = **"Invalid Option Selected"**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

}

**break**;

**default** :

$reply = **"More session counts and menus to come."**;

$type = **"0"**;

$ussd -> deleteSession($msisdn);

**break**;

}

}

$response=$msisdn.**'|'**.$reply.**'|'**.$sessionID.**'|'**.$type;

$write = $time . **"|Request\_reply|"**. $response . PHP\_EOL;

*file\_put\_contents*(**'ussd\_access.log'**, $write, ***FILE\_APPEND***);

**echo** $response;

**?>**