SCHOOL OF COMPUTING
UNIVERSITI UTARA MALAYSIA

PROGRAMMING 1
STIA 1113

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TOPIC: BANK

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TABLE OF CONTENT

1.0 Background of Project

Our project is to develop an application system for the bank. Our system offers a variety of services, including business loan, personal account, credit card, housing loan and investment. This will help our customers in fulfilling their needs. Moreover, we have discussed renaming our bank as 'GEMpak BANK'.

1.1 Business loan

The first service in GEMpak Bank is Business Loan. This service will help the user to get business loans. There are 2 types of application methods which are by online and by branch application. This will be easier for the user because for small loan, they can apply the loan online and they do not waste their time. The system will ask 3 information, personal information, business information and loan information. The system also will calculate monthly payment using the formula below:

(P * i) / (1 - (1/ ((1 + i) ^ (n *12)))

where

P = loan amount

i = monthly interest in decimal

n = loan term in month

The system also will show the record that has been input by the user.

Name	Phone Number	Account number	Loan amount (RM)	Monthly payment (RM)	Total payment (RM)
aisyah	01156533696	36021547896253	150000	2085.02	17142.03
akim	01478253695	12547896302154	70000	973.01	81732.95

1.2 Personal account

The second service is Personal account. This service will be a system that help user to transfer their money by using DuitNow. It also will ask user information related to the recipient bank name, recipient account, recipient name, recipient reference, and amount that a user wants to transfer. This program will lead the user through the process of transferring money and will calculate the total amount transmitted and any fees that may be charged based on the user's request. The user will also be given a list of gifts from which to choose in order to celebrate the new year. Before deciding on their gift, the user will be asked to play a guessing game.

OPTION		FORMULA
DuitNow	Recipient bank name : Maybank Recipient account :72671932 Recipient name : Ali Bin Abu Recipient reference : Loan Amount : RM 500.00 *Fee = 2% *RM 1.00 will be charged.	Total amount have been charged : RM 511.00 FORMULA : 500 + (500*0.02)+1.00 = RM 511.00

List Of Gifts:

GIFTS
1. Notebook + Calendar
2. Bag + Calendar
3. Tumblr Bottle + Calendar
4. We Bare Bear + Calendar
5. Colour Pencil + Calendar

1.3 Credit Card

The third service is credit card. This system will help people to determine how much balance on your credit card based on your credit card choosing and how much you need to pay up in future.

Credit card type 1	Credit card type 2	Credit card type 3
Balance = 40000– total payment	Balance=80000–total payment Cashback = (0.07) (Petrol)	Balance= 65000 – total payment Cashback = (0.5) (airplane ticket) + (0.5) (Hotel Booking)

This system will calculate how much you need to pay for a month base on Investment, rate and Paid amount

Calculation:

-Percentage interest = (Investment * rate) / (12)

-Interest = (percentage interest / 100)

-Paid amount = Interest + investment

-balance = Paid amount – Interest

This system will repeat many times based on how many users want to put it for probability.

1.4 Housing loan

Last but not least, the housing loan system in GEMpak Bank will help the borrower to calculate the loan amount according to how much they want to borror, interest rate and the number of years. The housing loan system will come out with the monthly payment and the total of payment.

Housing loan	Rm 249000	3.80 %	30 years

The calculation

1.Principal = Rm 249000

2.Interest rate = 3.80/12/100

3.Number of years = 30 * 12

4.The monthly payment

$$\frac{249000 * 0.31 (1+0.31)*30 \text{ years}}{(1+0.31) 30 \text{ years} - 1}$$

5.The total payment

Total monthly payment * term of years * 12

1.5 Investment

Lastly, the fifth service in GEMpak Bank is the Investment. Our bank is provided term-investment which can be invested in the short period with minimum 3 months and maximum 12 months. The table below shows the information about this investment.

Investment Amount	RM 1,000- RM 10,000	RM 10,001- RM 30,000	RM 30,001- RM 50,000
percentage of Net Return to customer	3.2%	3.8%	4.2%

Formula

- Profit payable to cust = Investment amount * Percentage of return to customer * 30/365
- Accumulated profit = Profit payable to cust * investment tenure
- Total amount = Investment amount + accumulated profit.

Calculation:

- Profit payable to cust = Rm 30,000 x 4.20% x 30/365 = Rm 96.82
- Accumulated profit = Rm 96.82 x 3 = Rm 290.46
- Total amount = Rm 30,000 + RM 290.46 = Rm 30,290.46

So, here is an example of the calculation. Customers have to enter the amount of investment between RM1000 to RM50,000 and choose the investment tenure. So, in this system, customers have to follow the instructions one by one to get the real output which are firstly, they need to register, then do investment. For selection 3, customers have the choice either to look at future value or not. After that, print receipt and lastly exit system.

2.0 Program Descriptions

In program descriptions, we will explain to customers how to use our system.

2.1 Main menu

```
5
6       public static Scanner sc = new Scanner (System.in);
7
8       public static void main(String[] args) {
9           char choices;
10          Scanner sc = new Scanner (System.in);
11          do {
12          System.out.println("******####### WELCOME TO GEMpak BANK #######*******");
13          System.out.println("MAIN MENU");
14          System.out.println("1. BUSINESS LOAN");
15          System.out.println("2. PERSONAL ACCOUNT");
16          System.out.println("3. CREDIT CARD");
17          System.out.println("4. HOUSING LOAN");
18          System.out.println("5. INVESTMENT");
19          System.out.println("******########################################*******");
20          System.out.print("Please choose your service :");
21          int service = sc.nextInt();
```

```
******####### WELCOME TO GEMpak BANK #######*******
MAIN MENU
1. BUSINESS LOAN
2. PERSONAL ACCOUNT
3. CREDIT CARD
4. HOUSING LOAN
5. INVESTMENT
******########################################*******
Please choose your service :
```

Firstly, once you run the system, the system will welcome the user to GEMpak bank. After that, the programme will display the list of main menus that our services provided for user to choose. The service we provided included business loan, personal account, credit card, housing loan and investment.

```
23          if(service==1) {
24              businessLoan b = new businessLoan();
25              b.main(args);
26          }
27          else if(service==2) {
28              personalAccount p = new personalAccount();
29              p.main(args);
30          }
31          else if(service==3) {
32              creditCard c = new creditCard();
33              c.main(args);
34          }
35          else if(service==4) {
36              HousingLoan h = new HousingLoan();
37              h.main(args);
38          }
39          else if(service==5) {
40              investment i = new investment();
41              i.main(args);
42          }
43          else {
44              System.out.println("Invalid Number ! Please Try Again");
45          }
46
```

For the main menu, we use the if-else statement as a selection control structure. User will bring to the new web page based on the number user insert. For example, if user choose service ‘2’, the user will enter the personal account page while if user choose service ‘5’, user will enter the investment page.

2.2 Business loan

If you choose number 1, which is Business Loan, the system will list out a menu of business loan. There are 7 options in the menu which are information of Loan, type of application method, information about application method, the interest rate, input detail information, view record and the last one is exit from the system.

```
20    public static void displayMenu () {
21        System.out.println("MAIN MENU");
22        System.out.println("1. Information of Loan");
23        System.out.println("2. Type of application method");
24        System.out.println("3. Information about application method");
25        System.out.println("4. The interest rate");
26        System.out.println("5. Input information");
27        System.out.println("6. View Record");
28        System.out.println("7. Exit");
29        System.out.println("PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:");
30        choice = sc.nextInt();
31    }
```

```
MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
```

After that, you will see the information on the application method. There are 2 types of application methods that were provided from our bank service, which are by online application and by branch application. You also will be given further information about the application method.

```
49    public static void TypeApplication(){
50            System.out.println("There are 2 types of application method: ");
51            System.out.println("1.  By online application");
52            System.out.println("2.  By branch application");
53
54            System.out.println("");
55            System.out.println("Enter 00 to back to main menu :");
56            int next = sc.nextInt();
57            System.out.println("");
58        }
```

```
There are 2 types of application method:
1.  By online application
2.  By branch application
```

```java
public static void ApplicationInformation()
    {
        System.out.println("Not sure which application method suits you better? Here are the key differences to help you decide:");
        System.out.println("");
        System.out.println("1.  Online Application");
        System.out.println("    a) Financing amount: RM10,000 - RM250,000");
        System.out.println("    b) Financing tenure: Up to 5 years");
        System.out.println("    c) Business operation period: Minimum 1 year");

        System.out.println("");
        System.out.println("2.  Branch Application");
        System.out.println("    a) Financing amount: RM50,001- RM1,500,000");
        System.out.println("    b) Financing tenure: Up to 7 years");
        System.out.println("    c) Business operation period: Minimum 3 year");
```

```
Not sure which application method suits you better? Here are the key differences to help you decide:

1.  Online Application
    a) Financing amount: RM10,000 - RM250,000
    b) Financing tenure: Up to 5 years
    c) Business operation period: Minimum 1 year

2.  Branch Application
    a) Financing amount: RM50,001- RM1,500,000
    b) Financing tenure: Up to 7 years
    c) Business operation period: Minimum 3 year
```

If you choose to input information, you will first be required to complete the personal details of the customer in order to proceed. About the personal details of the customer, you need to fill in the personal details such as name, IC number, phone number and also your account number.

```java
public static void Input() {
    char choiceAdd;

    do {
    System.out.println("Enter your name: ");
    name[i] = sc.next()+sc.nextLine();
    System.out.println("Enter your number phone: ");
    phone_num[i] = sc.next()+sc.nextLine();
    System.out.println("Enter your account number: ");
    acc_num[i] = sc.next()+sc.nextLine();
```

```
Enter your name:
aisyah
Enter your number phone:
01123654897
Enter your account number:
02136598745016
```

Then, you need to enter your business information such as business operation period and your business annual revenue or sales. If your operation period is more than 12 months and revenue or sales less than 25 million, you will enter loan information like amount of loan and

financing tenure. On the other hand, the system will come out “Sorry, you did not qualify to make a business loan”.

```
Enter business operation period (in months):
48
Enter your annual revenue:                                          od (in months): ");
200000
```

```
117         System.out.println("Enter your annual revenue: ");
118         int revenue = sc.nextInt();
119
120         if ((period >= 12) && (revenue <= 25000000)) {
121         System.out.println("Enter the amount of loan: ");
122         amount[i] = sc.nextInt();
123         System.out.println("Enter financing tenure: ");
124         tenure[i] = sc.nextInt();
125         }else
126             System.out.println("Sorry, you did not qualified to make a business loan");
127
128         CalculatePayment(i);
```

```
Enter the amount of loan:
300000
Enter financing tenure:
7

Enter business operation period (in months):
6
Enter your annual revenue:
12000
Sorry, you did not qualified to make a business loan
```

The system will calculate your monthly payment and total of your payment to the bank based on your amount of loan and financing tenure. The interest rate is 4.5%.

```
130         System.out.println("Enter 1 to proceed to monthly payment calculation");
131         int next = sc.nextInt();
132         System.out.printf("Monthly payment is RM %.2f%n" , monthlyPayment[i]);
133         System.out.printf("Total payment is RM %.2f%n" , totalPayment[i]);
```

```
Monthly payment is RM 4170.05
Total payment is RM 350284.06
RECORD HAS BEEN ADDED SUCCESSFULLY!!
```

After that, the system will be asked that whether you want to enter another input or not. If you want to enter another input, you have to enter personal information, business information and loan information like before. If you choose not to enter another input, the system will show the menu again.

```
136         System.out.println("DO YOU WANT TO ADD ANOTHER INPUT (Y/N): ");
137         choiceAdd = sc.next().charAt(0);
138         System.out.println("-----------------------------------------");
139         i++;
140         }while ((choiceAdd == 'y') || (choiceAdd == 'Y'));
```

```
-----------------------------------------
DO YOU WANT TO ADD ANOTHER INPUT (Y/N):
y
-----------------------------------------
-----------------------------------------
DO YOU WANT TO ADD ANOTHER INPUT (Y/N):
n
-----------------------------------------
```

If you want to view record that you have enter before, you will choose 6 from the menu. In the record, there are name, phone number, account number, loan amount, monthly payment and total payment.

```
153    public static void ViewRecord() {
154        System.out.println("-----------------------------------------------------------------------------------------------------");
155        System.out.printf("%-20s%-20s%-20s%-20s%-20s%-10s\n","Name", "Phone", "Account Number", "Loan amount (RM)", "Monthly payment(RM)", "Total payment(RM)")
156        System.out.println("-----------------------------------------------------------------------------------------------------");
157
158        for (int j = 0; j < i; j++) {
159            System.out.printf("%-20s%-20s%-20s%-20s%-20.2f%-10.2f\n", name[j], phone_num[j], acc_num[j], amount[j], monthlyPayment[j], totalPayment[j]);
160        }
161        System.out.println("-----------------------------------------------------------------------------------------------------");
```

```
-----------------------------------------------------------------------------------------------------
Name                Phone               Account Number      Loan amount (RM)    Monthly payment(RM) Total payment(RM)
-----------------------------------------------------------------------------------------------------
aisyah              0123647789          01258744963504      150000              2085.02             175142.03
akim                0147852369          05469873269815      50000               695.01              58380.68
-----------------------------------------------------------------------------------------------------
```

Lastly, when you exit from the system, there are information about if you have any problem you can contact our customer service.

```
180    static void exitSystem(String [] contact) {
181        System.out.println("If you have any problem about business loan, you can contact our customer service: ");
182
183        contact [0] = "Zakri";
184        contact [1] = "Ahmad";
185        contact [2] = "Siti";
186
187        System.out.println("-------------------------------------");
188        System.out.println(" 1    " + contact [0] + "         011 7789 5464 " );
189        System.out.println("-------------------------------------");
190        System.out.println(" 2    " + contact [1] + "         011 8942 1215 " );
191        System.out.println("-------------------------------------");
192        System.out.println(" 3    " + contact [2] + "          019 6539 844  " );
193        System.out.println("-------------------------------------");
194
195        System.out.println("\nOr you can email or you can go to our website");
196        System.out.println("\nEmail : bankGEMbusinessLoan@gmail.com");
197        System.out.println("Website : bankgembusinessloan.com.my");
198    }
```

```
If you have any problem about business loan, you can contact our customer service:
-------------------------------------
 1    Zakri         011 7789 5464
-------------------------------------
 2    Ahmad         011 8942 1215
-------------------------------------
 3    Siti          019 6539 844
-------------------------------------

Or you can email or you can go to our website

Email : bankGEMbusinessLoan@gmail.com
Website : bankgembusinessloan.com.my
```

Numerical Data and Expression

```
System.out.println("Enter your name: ");
name[i] = sc.next()+sc.nextLine();
System.out.println("Enter your number phone: ");
phone_num[i] = sc.next()+sc.nextLine();
System.out.println("Enter your account number: ");
acc_num[i] = sc.next()+sc.nextLine();

System.out.println("Enter business operation period (in months): ");
int period = sc.nextInt();

System.out.println("Enter your annual revenue: ");
int revenue = sc.nextInt();
```

Selection Control Structures

```
if ((period >= 12) && (revenue <= 25000000)) {
System.out.println("Enter the amount of loan: ");
amount[i] = sc.nextInt();
System.out.println("Enter financing tenure: ");
tenure[i] = sc.nextInt();
}else
    System.out.println("Sorry, you did not qualified to make a business loan");
```

Repetition Structure

```
for (int j = 0; j < i; j++) {
    System.out.printf("%-20s%-20s%-20s%-20s%-20.2f%-10.2f\n", name[j], phone_num[j], acc_num[j], amount[j], monthlyPayment[j], totalPayment[j]);
}
```

```
do {
    displayMenu();

switch (choice) {
case 1 : Information();
break;
case 2 : TypeApplication();
break;
case 3 : ApplicationInformation();
break;
case 4 : Interest();
break;
case 5 : Input();
break;
case 6 : ViewRecord();
break;
case 7 : exitSystem();
break;
}
}while (choice != 7);
```

Array

```
public static void CalculatePayment(int index) {
    System.out.println("");
    monthlyPayment[index] = amount[index] * (interest / 12) / ( 1 - 1 / Math.pow(1 + (interest / 12), tenure[index] * 12));
    totalPayment[index] = monthlyPayment[index] * tenure[index] * 12;

}
```

Passing Array to Methods

```
public static void main(String[] args) {
    // TODO Auto-generated method stub
    String contact [] = {"Zakri", "Ahmad", "Siti"};
```

```
static void exitSystem(String [] contact) {
    System.out.println("If you have any problem about business loan, you can contact our customer service: ");

    contact [0] = "Zakri";
    contact [1] = "Ahmad";
    contact [2] = "Siti";

    System.out.println("-------------------------------------");
    System.out.println(" 1    " + contact [0] + "         011 7789 5464 " );
    System.out.println("-------------------------------------");
    System.out.println(" 2    " + contact [1] + "         011 8942 1215 " );
    System.out.println("-------------------------------------");
    System.out.println(" 3    " + contact [2] + "          019 6539 844  " );
    System.out.println("-------------------------------------");

    System.out.println("\nOr you can email or you can go to our website");
    System.out.println("\nEmail : bankGEMbusinessLoan@gmail.com");
    System.out.println("Website : bankgembusinessloan.com.my");
}
```

Using Methods

```
public static void main(String[] args) {
    // TODO Auto-generated method stub
    do {
        displayMenu();

    switch (choice) {
    case 1 : Information();
    break;
    case 2 : TypeApplication();
    break;
    case 3 : ApplicationInformation();
    break;
    case 4 : Interest();
    break;
    case 5 : Input();
    break;
    case 6 : ViewRecord();
    break;
    case 7 : exitSystem(contact);
    break;
```

2.3 Personal account

After user pick service 2 for the personal account, user will be welcoming to the 'GEMpak BANK'. User also need to choose the option given to enter into the web page.

1. If user choose 1, system will bring user to page registering new user. Then, user need to insert the information details like their full name, account number and number phone. After user insert all the details, user will be a new member in our GEMpak BANK. Then, the system will return to the main menu.

```
_____________________________________________________________________________
############# WELCOME TO GEMpak BANK #############
#  1.   Register New User                         #
#  2.   DuitNow                                   #
#  3.   Exit                                      #
################################################
CHOOSE ONE OF THE OPTION ABOVE : 1

XXXXXXXXXXXXXXXXXX NEW USER XXXXXXXXXXXXXXXXXXXX

______PLEASE INSERT THE INFORMATION DETAILS______

 Full Name : NADHIR BIN NASAR
 Account Number: 735628
 Number Phone: 0138299326

--------THANK YOU FOR REGISTERING WITH US !---------
--------NOW YOU ARE MEMBER OF GEMpak BANK !---------
```

2. If user choose 2, system will bring user to page DuitNow for transferring the money from user account to another account. User need to insert their own account number and key in all the information details. After user insert the amount, our service will remind user that fee 2% and RM 1.00 will be charged for every transaction. Total amount that been charged will display after user choose to continue.

```
############## WELCOME TO GEMpak BANK ##############
#  1.   Register New User                          #
#  2.   DuitNow                                    #
#  3.   Exit                                       #
####################################################
CHOOSE ONE OF THE OPTION ABOVE : 2

XXXXXXXXXXXXXXXXXX DuitNow XXXXXXXXXXXXXXXXXXXX

Your Account Number : 735628

______PLEASE INSERT THE INFORMATION DETAILS______
Recipient Bank Name : MAYBANK
Recipient Account : 825581
Recipient Name : MEER BIN QEEN HAIDAR
Recipient Reference : WINNER MASTER CHEF
Amount : RM 200
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^  *Fee : 2%                                                                    ^
^  *Please take note that RM1.00 will be charged for every transaction         ^
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
CHOOSE 1 TO CONTINUE !
1
Total that have been charged : RM 205.00


-----------------------------------------------------
          **TRANSACTION SUCCESSFULL**
-----------------------------------------------------
```

3. System will ask user if they want to make another transaction. If user choose ‘y’, the system will ask again for the details needed and will display it again. When user choose ‘n’, the system will return to the main menu again.

```
DO YOU WANT TO ADD ANOTHER TRANSACTION? (Y/N) : Y
Your Account Number : 735628

______PLEASE INSERT THE INFORMATION DETAILS______
Recipient Bank Name : BANK RAKYAT
Recipient Account : 7245182
Recipient Name : ARMIEN BIN SYAKIRIN
Recipient Reference : FOR FUN
Amount : RM 300
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^  *Fee : 2%                                                                    ^
^  *Please take note that RM1.00 will be charged for every transaction ^
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
CHOOSE 1 TO CONTINUE !
1
Total that have been charged : RM 307.00


-----------------------------------------------------
          **TRANSACTION SUCCESSFULL**
-----------------------------------------------------

DO YOU WANT TO ADD ANOTHER TRANSACTION? (Y/N) : N
```

4. If user choose 3, user was decide to exit from the page. System will greeting user with thankyou for using our GEMpak BANK.

```
_____________________________________________________________________________
############## WELCOME TO GEMpak BANK ##############
#  1.   Register New User                          #
#  2.   DuitNow                                    #
#  3.   Exit                                       #
#################################################
CHOOSE ONE OF THE OPTION ABOVE : 3
-----------------------------------------------
       THANK YOU FOR USING GEMpak BANK
-----------------------------------------------
```

5. Our bank is lovely to giving some gift to our beloved customer since we are celebrating a new year. User need to choose their gift by pick the number of the list given. Before user decide to choose their gift, they need to play a guess number game (it is just for fun). User need to guess a random number until it corrects. However, user just can attempt it for 5 times.

```
                                LETS PLAY A GUESS NUMBER GAME FIRST !!

                        You Will Be Asked To Guess A Number Before Proceed to your gifts
                                        You can attempt 5 times

A number is chosen between 1 to 100.
Guess the number:
40
The number is less than 40
Guess the number:
29
The number is less than 29
Guess the number:
19
The number is less than 19
Guess the number:
5
The number is less than 5
Guess the number:
2
You have exceeded the maximum attempts.
The number is 3
```

6. Lastly, after user finished the guess number game, user will provide the list of gifts that need to choose. If user choose gift 1, user will get notebook and calendar as a gift.

```
                                        PLEASE CHOOSE YOUR GIFTS<3

1.Notebook + Calender

2.Bag + Calender

3.Tumblr Bottle + Calender

4.We Bare Bear + Calender

5.Colour Pencil + Calender

Insert the NUMBER : 4

You choose We Bare Bear and 2022 Calender as a gift.
```

Numerical Data and Expression

```
System.out.print("Your Account Number : ");
acc[i]= sc.nextInt();
System.out.println("");
System.out.println("______PLEASE INSERT THE INFORMATION DETAILS______");
System.out.print("Recipient Bank Name : ");
bankname1[i]=sc.nextLine();
sc.nextLine();
System.out.print("Recipient Account : ");
acc1[i]=sc.nextLine();
System.out.print("Recipient Name : ");
name1[i]=sc.nextLine();
System.out.print("Recipient Reference : ");
reference1[i]=sc.nextLine();
System.out.print("Amount : RM ");
amount1[i]= sc.nextInt();
```

Selection Control Structure

```
208 if (gift == 1) {
209     System.out.println("\nYou choose Notebook and 2022 Calender as a gift.     ");
210 }
211 else if(gift == 2) {
212     System.out.println("\nYou choose Bag and 2022 Calender as a gift.          ");
213 }
214 else if (gift == 3) {
215     System.out.println("\nYou choose Tumblr Bottle and 2022 Calender as a gift.");
216 }
217 else if (gift == 4) {
218     System.out.println("\nYou choose We Bare Bear and 2022 Calender as a gift. ");
219 }
220 else if (gift == 5) {
221     System.out.println("\nYou choose Colour Pencil and 2022 Calender as a gift.");
222 }
223 else {
224 System.out.println("\nYou don't choose any gift.");
225 }
```

Repetition Structure

```
10 do
11 {
12         System.out.println("_____________________________________________________");
13         System.out.println("############# WELCOME TO GEMpak BANK #############");
14         System.out.println("#  1.   Register New User                         #");
15         System.out.println("#  2.   DuitNow                                   #");
16         System.out.println("#  3.   Exit                                      #");
17         System.out.println("#################################################");
18 
19         System.out.print("CHOOSE ONE OF THE OPTION ABOVE : ");
20         choose = sc.nextInt();
21 
22 int i;
23 switch (choose)
24 {
25    case 1:
26        String[] user = null;
27        Register(user);
28        break;
29    case 2:
30        String DuitNow = null;
31        Duitnow(DuitNow);
32        break;
33    case 3:
34     String exit = null;
35     exitSystem(exit);
36        break;
37 }
38 } while (choose != 3);
```

```
127         System.out.print("DO YOU WANT TO ADD ANOTHER TRANSACTION? (Y/N) : ");
128         addtransaction=sc.next().charAt(0);
129         if (addtransaction=='N'||addtransaction=='n') {
130             back='y';
131             i=length;//break the Loop
```

```
162         int number = 1 + (int)(100 * Math.random());
163         int K = 5;
164         int i, guess;
165 
166         System.out.println("\nA number is chosen" + " between 1 to 100.");
167 
168         for (i = 0; i < K; i++) {
169 
170         System.out.println("Guess the number:");
171         guess = sc.nextInt();
172 
173         if (number == guess) {
174 
175         System.out.println("Congratulations!" + " You guessed the number.");
176 
177        break;
178  }
179        else if (number > guess && i != K - 1) {
180 
181        System.out.println("The number is " + "greater than " + guess);
182 }
183 
184        else if (number < guess && i != K - 1) {
185 
186        System.out.println("The number is" + " less than " + guess);
187 }
188 }
189         if (i == K) {
190 
191        System.out.println("You have exceeded the maximum attempts.");
192        System.out.println("The number is " + number);
```

Array

```
43          String [] name = new String[15];
44          String [] acc_number = new String[15];
45          int [] phone_number = new int[10];
46          int a = 1;
47
48          System.out.println("");
49          System.out.println("XXXXXXXXXXXXXXXXXX NEW USER XXXXXXXXXXXXXXXXXXXX");
50          System.out.println("");
51          System.out.println("_____PLEASE INSERT THE INFORMATION DETAILS_____");
52          System.out.println("");
53          System.out.print(" Full Name : ");
54          name [a]= sc.next();
55          sc.nextLine();
56          System.out.print(" Account Number: ");
57          acc_number [a]= sc.next();
58          System.out.print(" Number Phone: ");
59          phone_number[a] =sc.nextInt();
60          System.out.println("");
61          System.out.println("--------THANK YOU FOR REGISTERING WITH US !---------");
62          System.out.println("--------NOW YOU ARE MEMBER OF GEMpak BANK !---------");
```

```
71          //Array
72          int length=10;
73          int[] acc= new int[length];
74          double[] amount1=new double[length];
75          double total1;
76          String[] acc1= new String[length];
77          String[] bankname1= new String[length];
78          String[] name1= new String[length];
79          String[] reference1= new String[length];
80          //Array End
```

```
88          for (int i=0; i < length; i++) {
89              i=addedTime;
90          System.out.print("Your Account Number : ");
91          acc[i]= sc.nextInt();
92          System.out.println("");
93          System.out.println("______PLEASE INSERT THE
94          System.out.print("Recipient Bank Name : ");
95          bankname1[i]=sc.nextLine();
96          sc.nextLine();
97          System.out.print("Recipient Account : ");
98          acc1[i]=sc.nextLine();
99          System.out.print("Recipient Name : ");
100         name1[i]=sc.nextLine();
101         System.out.print("Recipient Reference : ");
102         reference1[i]=sc.nextLine();
103         System.out.print("Amount : RM ");
104         amount1[i]= sc.nextInt();
```

```
115 System.out.print("Total that have been charged : RM ");
116  total1 =amount1[i]+((amount1[i]*0.02)+1);
117 System.out.printf("%.2f",  total1);
118 System.out.println("\n");
```

Passing Array to Method

```
41⊖     static void Register(String [] user) {
```

```
66⊖     static void Duitnow(Object duitNow) {
```

```
137⊖     static void exitSystem(String exit) {
```

Method

```
switch (choose)
{
   case 1:
        String[] user = null;
        Register(user);
        break;
   case 2:
        String DuitNow = null;
        Duitnow(DuitNow);
        break;
   case 3:
    String exit = null;
    exitSystem(exit);
        break;
}
} while (choose != 3);
}
```

2.4 Credit Card

Credit card:

1. If you choose 3 you will enter credit card service. The system will show a menu for credit card service. 1 for payment using credit card, 2 for gift shop, 3 for credit card calculator and 4 for exit credit card uses.

```
13          System.out.println("*****Welcome to GEMpak Bank Credit Card*****");
14          System.out.println("MAIN MENU:");
15          System.out.println();
16          System.out.println("1.payment using credit card");
17          System.out.println("2.Gift shop");
18          System.out.println("3.Credit Card Calculator");
19          System.out.println("4.stop");
20          System.out.println();
```

2. If the user chooses 1, the user will be sent to payment using a credit card. In this service users need to enter how much the price for an item that is listed in this system. For example, smartphone, laptop, petrol and more. You can give RM 0 if you don't want to buy any of this stuff.

```
69          System.out.println("This month is June");
70
71          System.out.println("purchase for smartphone and laptop made in 10/6/2021:");
72          System.out.println();
73          System.out.println("how much ammount for smartphone:");
74          double smartphone = scanMe.nextDouble();
75          System.out.println("whats ammount for laptop:");
76          double laptop = scanMe.nextDouble();
77          System.out.println();
78
79          System.out.println("purchase for petrol,air plane ticket, insurance and house debt made in 20/6/2021:");
80          System.out.println();
81          System.out.println("how much ammount for petrol:");
82          double petrol = scanMe.nextDouble();
83          System.out.println("how much ammount for air plane ticket:");
84          double airplaneTicket = scanMe.nextDouble();
85          System.out.println("how much ammount for insurance:");
86          double Insurance = scanMe.nextDouble();
87          System.out.println("how much ammount for house debt:");
88          double houseDebt = scanMe.nextDouble();
89          System.out.println();
90
91          System.out.println("purchase for car devt and hotel booking made in 30/6/2021:");
92          System.out.println();
93          System.out.println("how much ammount for car debt:");
94          double carDebt = scanMe.nextDouble();
95          System.out.println("how much ammount for hotel booking:");
96          double HotelBooking = scanMe.nextDouble();
```

```
You choose credit card payment
Welcome to credit card payment
This month is June
purchase for smartphone and laptop made in 10/6/2021:

how much ammount for smartphone:
4000
whats ammount for laptop:
5000

purchase for petrol,air plane ticket, insurance and house debt made in 20/6/2021:

how much ammount for petrol:
50
how much ammount for air plane ticket:
300
how much ammount for insurance:
45
how much ammount for house debt:
75

purchase for car devt and hotel booking made in 30/6/2021:

how much ammount for car debt:
353
how much ammount for hotel booking:
85
```

3. After that, the system required you to choose a credit card to use to pay for things you are buying. There are 3 credit cards you can use. First one is GEMpak e Credit Card. Second one is GEMpak Petronas Platinum MasterCard with 7% cashback. Last one is GEMpak Platinum Explore Credit Card-I with 5% cashback. Afterwards the system will calculate how many balances are in this credit card and your cashback (if have).

```
132             System.out.println("Choose what credit type you want to use:");
133             int a = scanMe.nextInt();
134         if(a==1) {
135 
136             System.out.println("You choose GEMpak e Credit Card");
137             System.out.println("Your balance for this credit card is" + limit1);
138             double balance = limit1 - totalpayment;
139             System.out.println("Your limit for CIMB e Credit Card is:" + balance);
140 
141         }
142 
143 
144 
145             else if(a==2) {
146                 System.out.println("You choose GEMpak Petronas Platinum MasterCard");
147                 System.out.println("Your balance for this credit card is" + limit2);
148                 System.out.println("You have 7% cashback for this credit card");
149                 double balance = limit2 - totalpayment;
150                 double cashback = (0.07) * (petrol);
151                 System.out.println("Your limit for CIMB Petronas Platinum MasterCard is:RM" + balance);
152                 System.out.println("Your Cashback is:RM" + cashback);
153 
154             }
155             else if(a==3) {
156                 System.out.println("You choose GEMpak Platinum Explore Credit Card-i");
157                 System.out.println("Your balance for this credit card is" + limit3);
158                 System.out.println("You have 5% cashback for this credit card");
159                 double balance = limit3 - totalpayment;
160                 double cashback = ((0.05) * (airplaneTicket)) + ((0.05) *(HotelBooking));
161                 System.out.println("Your limit for Bank Rakyat Platinum Explore Credit Card-i is:" + balance);
162                 System.out.println("Your Cashback is:RM" + cashback);
163 
164             }
165             else {
166                 System.out.println("Unknown Credit Card");
167             }
```

TYPE	NAME	CREDIT CARD NUMBER	EXPARITION DATE	CCV
1	MUHAMMAD AFIQ IMRAN BIN AZIZAN	1111-2222-3333-4444	21/27	445
2	MUHAMMAD AFIQ IMRAN BIN AZIZAN	2324-5957-9128-5387	09/28	499
3	MUHAMMAD AFIQ IMRAN BIN AZIZAN	7979-6124-6996-9000	01/25	321

```
Choose what credit type you want to use:
2
You choose GEMpak Petronas Platinum MasterCard
Your balance for this credit card is80000.0
You have 7% cashback for this credit card
Your limit for CIMB Petronas Platinum MasterCard is:RM70092.0
Your Cashback is:RM3.5000000000000004
Total debt to be pay per monthly is RM:825.6666666666666
Your unpaid Debt for this credit card is RM1000
```

4. After that the system will calculate charge payment for this month and money left.

```
189         System.out.println("Whats you current money:");
190         double currentmoney = scanMe.nextDouble();
191             double DPR = 15/365;
192 
193 
194                 double MonthlyIntrestRate = DPR * 30;// * 30 because June have 30 days
195                 System.out.println("The annual interest rate for 3 credit card is 15%");
196                 double rate = (15/100) * (MonthlyIntrestRate);
197                 double monthlydebt = AllDebt1 + rate;
198                 System.out.println("your charge payment for this month is RM:");
199                 System.out.printf("%.2f",monthlydebt);
200                 System.out.println();
201 
202                 double moneyleft = currentmoney - monthlydebt;
203                 System.out.println("Your money left is RM:");
204                 System.out.printf("%.2f",moneyleft);
205                 System.out.println();
206     }
```

```
Whats you current money:
3500
The annual interest rate for 3 credit card is 15%
your charge payment for this month is RM:
825.67
Your money left is RM:
2674.33
```

5. If you choose 2 the system will put you in a gift shop. Here you can choose 3 items based on points that have been given. Currently you have 30 points. The item is as follows.

```
215         System.out.println("Welcome Gift Shop:");
216         System.out.println("_____________________________________");
217         System.out.println("|ITEM                    |ITEM CODE  |");
218         System.out.println("|________________________|___________|");
219         System.out.println("|* Samsung Smartphone    |    1      |");
220         System.out.println("|* Trip to Langkawi      |    2      |");
221         System.out.println("|*GCS Ticket Movie       |    3      |");
222         System.out.println("|*PS4                    |    4      |");
223         System.out.println("|*ASUS Laptop            |    5      |");
224         System.out.println("|________________________|___________|");
```

```
You can choose 3 Item in Gift Shop, due to purchase made this month
Choose item that you interest in the point shop:
2
you choose Trip to Langkawi
You have 2 left to choose your gift
Choose item that you interest in the point shop:
3
you choose CGS Ticket Movie
You have 1 left to choose your gift
Choose item that you interest in the point shop:
1
you choose Samsung Smartphone
You have 0 left to choose your gift
We hope you like the gift
```

6. This last one is a calculator for payment in 1 month. And first of all you need to enter how many probability you want to see in this calculation.

```
280         System.out.print("select how many probability you want to see: ");
281         int probability = scanMe.nextInt();
282         System.out.println();
283         System.out.println("_____________________________________________________________________");
```

7. After that the user needs to enter the investment for the credit card, its annual interest rate and payment you want to make for the credit card. The system will calculate interest and after that the interest will be added to investment and become a paid amount. Lastly, the balance will be achieved by paid amount minus payment.

```
284             System.out.println("The "+ ii + " calculation" );
285             System.out.print("how much you invest for this credit card: ");
286             double investment = scanMe.nextDouble();
287             System.out.print("Anual interst rate for this credit card: ");
288             double rate = scanMe.nextDouble();
289             System.out.println("Enter your payment for this month:");
290             double payment = scanMe.nextDouble();
291             System.out.println();
292             double percentageInterest = (investment * rate)/(12);
293             double interest = (percentageInterest / 100);
294             System.out.println("interst: " + interest);
295             double PaidAmount = interest + investment;
296             System.out.println("Paid ammount: " + PaidAmount);
297             double balance = PaidAmount - payment;
298             System.out.println("Balance of debt left: " + balance);
299             System.out.println("_____________________________________________________________________");
300
301             System.out.println();
```

```
The 1 calculation
how much you invest for this credit card: 1000
Anual interst rate for this credit card: 12
Enter your payment for this month:
500

interst: 10.0
Paid ammount: 1010.0
Balance of debt left: 510.0
```

8. Lastly, when you choose 4, the system will exit the credit card menu and to the main menu. The system will print out “thank you for using our program”.

```
44          case 4:
45              System.out.println("thank you for using our program");
46              break;
47          }
```

```
choose what you want to do:
4
thank you for using our program
```

Numerical Data and Expression:

```
68
69          System.out.println("purchase for smartphone and laptop made in 10/6/2021:");
70          System.out.println();
71          System.out.println("how much ammount for smartphone:");
72          double smartphone = scanMe.nextDouble();
73          System.out.println("whats ammount for laptop:");
74          double laptop = scanMe.nextDouble();
75          System.out.println();
76
77          System.out.println("purchase for petrol,air plane ticket, insurance and house debt made in 20/6/2021:");
78          System.out.println();
79          System.out.println("how much ammount for petrol:");
80          double petrol = scanMe.nextDouble();
81          System.out.println("how much ammount for air plane ticket:");
82          double airplaneTicket = scanMe.nextDouble();
83          System.out.println("how much ammount for insurance:");
84          double Insurance = scanMe.nextDouble();
85          System.out.println("how much ammount for house debt:");
86          double houseDebt = scanMe.nextDouble();
87          System.out.println();
88
89          System.out.println("purchase for car devt and hotel booking made in 30/6/2021:");
90          System.out.println();
91          System.out.println("how much ammount for car debt:");
92          double carDebt = scanMe.nextDouble();
93          System.out.println("how much ammount for hotel booking:");
94          double HotelBooking = scanMe.nextDouble();
```

Selection Control Structures

```
130             System.out.println("Choose what credit type you want to use:");
131             int a = scanMe.nextInt();
132         if(a==1) {
133
134             System.out.println("You choose GEMpak e Credit Card");
135             System.out.println("Your balance for this credit card is" + limit1);
136             double balance = limit1 - totalpayment;
137             System.out.println("Your limit for CIMB e Credit Card is:" + balance);
138
139         }
140
141
142
143             else if(a==2) {
144                 System.out.println("You choose GEMpak Petronas Platinum MasterCard");
145                 System.out.println("Your balance for this credit card is" + limit2);
146                 System.out.println("You have 7% cashback for this credit card");
147                 double balance = limit2 - totalpayment;
148                 double cashback = (0.07) * (petrol);
149                 System.out.println("Your limit for CIMB Petronas Platinum MasterCard is:RM" + balance);
150                 System.out.println("Your Cashback is:RM" + cashback);
151
152             }
153             else if(a==3) {
154                 System.out.println("You choose GEMpak Platinum Explore Credit Card-i");
155                 System.out.println("Your balance for this credit card is" + limit3);
156                 System.out.println("You have 5% cashback for this credit card");
157                 double balance = limit3 - totalpayment;
158                 double cashback = ((0.05) * (airplaneTicket)) + ((0.05) *(HotelBooking));
159                 System.out.println("Your limit for Bank Rakyat Platinum Explore Credit Card-i is:" + balance)
160                 System.out.println("Your Cashback is:RM" + cashback);
161
162             }
163             else {
164                 System.out.println("Unknown Credit Card");
165             }
```

Repetition Structure

```
231         while(t > 0) {
232             System.out.println("Choose item that you interest in the point shop:");
233             u = scanMe.nextInt();
234 
235             if(u == 1) {
236                 System.out.println("you choose Samsung Smartphone");
237                 t--;
238             }
239             else if(u==2) {
240                 System.out.println("you choose Trip to Langkawi");
241                 t--;
242             }
243             else if(u==3){
244                 System.out.println("you choose CGS Ticket Movie");
245                 t--;
246             }
247             else if(u==4){
248                 System.out.println("you choose PS4");
249                 t--;
250             }
251             else if(u==5){
252                 System.out.println("you choose ASUS Laptop");
253                 t--;
254             }
255             else {
256                System.out.println("the item didn't have in this shop");
257             }
258             System.out.println("You have" +" "+ t + " " + "left to choose your gift");
259 
260         }
261         System.out.println("We hope you like the gift");
262         System.out.println();
263 
264             }
```

Array

```
283     for(int ii=1; ii <= probability; ii++ ) {
284         System.out.println("The "+ ii + " calculation" );
285         System.out.print("how much you invest for this credit card: ");
286         double investment = scanMe.nextDouble();
287         System.out.print("Anual interst rate for this credit card: ");
288         double rate = scanMe.nextDouble();
289         System.out.println("Enter your payment for this month:");
290         double payment = scanMe.nextDouble();
291         System.out.println();
292         double percentageInterest = (investment * rate)/(12);
293         double interest = (percentageInterest / 100);
294         System.out.println("interst: " + interest);
295         double PaidAmount = interest + investment;
296         System.out.println("Paid ammount: " + PaidAmount);
297         double balance = PaidAmount - payment;
298         System.out.println("Balance of debt left: " + balance);
299         System.out.println("_____________________________________________________________________________");
300 
301         System.out.println();
302 
303     };
```

Passing Array to Methods

```
39          case 3:
40          System.out.println("You choose credit card calculator");
41          printCreditCardcalculator();
42          break;
```

Using Methods

```
26          switch(b)
27          {
28
29          case 1:
30          System.out.println("You choose credit card payment");
31          printcreditcard();
32          break;
33
34          case 2:
35          System.out.println("You choose gift shop");
36          break;
37
38
39          case 3:
40          System.out.println("You choose credit card calculator");
41          printCreditCardcalculator();
42          break;
43
44          case 4:
45              System.out.println("thank you for using our program");
46              break;
47          }
48
49          }while(b !=4);
50
51  }
```

2.5 Housing loan

When you enter the system, first thing will come out is a menu, the system will list all menu which is register in the system, loan calculator, type house, E-Statement and exit the system.

```
package Assingment3;

import java.util.Scanner;

public class housingLoan3 {

    static Scanner sc = new Scanner (System.in);

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        System.out.println("------------------------------------ \n");
        System.out.println("\n WELCOM TO GEMPAK BANK\n");
        System.out.println("------------------------------------ \n");

        int menu;

        do {

             System.out.println("\nMENU");
             System.out.println("\n1. REGISTER ");
             System.out.println("\n2. LOAN CALCULATOR ");
             System.out.println("\n3. TYPE HOUSE ");
             System.out.println("\n4. E-STATEMENT ");
             System.out.println("\n5. EXIT ");
             System.out.print("\nSELECT CHOOSE: ");
             menu = sc.nextInt();
```

```
------------------------------------

 WELCOM TO GEMPAK BANK

------------------------------------

MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE:
```

Next, when the user chooses number one the system comes out with the part that the user needs to register the full name, phone number and the account number in the system.

```
    static void Register(String[] housingloan) {

        Scanner scan = new Scanner (System.in);

        String [] name = new String[15];

        int [] phone_number = new int[10];

        String [] acc_number = new String[15];

        int a = 1;


        System.out.print(" \nPLEASE ENTER YOUR NAME: ");

        name [a]= scan.next();

        scan.nextLine();

        System.out.print(" \nPLEASE ENTER YOUR PHONE NUMBER : ");

        phone_number[a] =scan.nextInt();


        System.out.print(" \nPLEASE ENTER YOUR ACCOUNT NUMBER: ");

        acc_number [a]= scan.next();
```

```
-------------------------------------

 WELCOM TO GEMPAK BANK

-------------------------------------

MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 1

PLEASE ENTER YOUR NAME: MUHAMMAD YASRI BIN ROSLAN

PLEASE ENTER YOUR PHONE NUMBER : 01125658456

PLEASE ENTER YOUR ACCOUNT NUMBER: 300255520015
```

After the user registers the menu will come out again and ask the user to choose what they want as the next step. If the user chooses number 2 the system will come with the loan calculator. At this part the user can calculate the budget of monthly payment and the total of the payment.

```
118    static void calculator (Object loancalculator){
119
120        System.out.println("\nENTER YOUR NAME : ");
121
122        String name = sc.next();
123
124        System.out.println("\nENTER THE LOAN AMOUNT : ");
125
126        double loan =sc.nextDouble();
127
128        System.out.println("\nENTER THE INTERST RATE : ");
129
130        double interest = sc.nextDouble();
131
132        double monthlyinterest = interest /(12*100);
133
134        System.out.println("\nENTER THE NUMBER OF YEARS : ");
135
136        double time = sc.nextDouble();
137
138        double years = time * 12;
139
140        double monthlypayment= (loan*monthlyinterest*Math.pow(1+monthlyinterest,years))/(Math.pow(1+monthlyinterest,years)-1);
141
142        double totalpayment = monthlypayment * years;
143
144
145        System.out.println("\n*---YOUR TOTAL MONTHLY PAYMENT AND TOTAL PAYMENT---*");
146
147        System.out.println("\nTHE TOTAL MONTHLY PAYMENT IS RM "+ (Math.round(monthlypayment)));
148
149        System.out.println("\nTHE TOTAL PAYMENT IS RM " + (Math.round(totalpayment)));
```

```
MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 2

ENTER YOUR NAME :
YASRI

ENTER THE LOAN AMOUNT :
249000

ENTER THE INTERST RATE :
3.80

ENTER THE NUMBER OF YEARS :
30

*---YOUR TOTAL MONTHLY PAYMENT AND TOTAL PAYMENT---*

THE TOTAL MONTHLY PAYMENT IS RM 1160

THE TOTAL PAYMENT IS RM 417684
```

When the user wants to see the home package that GEMpak BANK suggests. Users can enter number 3. The system will ask the user how much budget that they want to house. After the user enters the budget system will give the suggestion Houser according to the budget. At this part the system will ask the user if they are interested in the suggestion and if user interested user needs to enter the number of packages and automatically the system will calculate the monthly payment of the home package.

```
155
156    static void House (String [] housetype) {
157
158
159        String home="";
160
161        int loan;
162
163        float pay;
164
165
166
167        System.out.print("\nPLEASE ENTER YOUR BUDGET PRICE :");
168
169        loan=(int)sc.nextDouble();
170
171
172
173        if(loan>=100000 && loan<=200000){
174            home="1";
175            pay=130000/200;
176            System.out.println("PACKAGE HOME 1 ");
177            System.out.println("APARTMENT");
178            System.out.println("PRICE RM 130000 ");
179            System.out.println("HOUSE LOAN 30 YEARS");
180
181
182        }
```

```
184
185        else if (loan>=200000 && loan<=300000){
186
187             home="2";
188                pay=270000/200;
189                System.out.println("PACKAGE HOME 2");
190                System.out.println("SINGLE STOREY ");
191                System.out.println("PRICE RM 270000 ");
192                System.out.println("HOUSE LOAN 30 YEARS ");
193
194
195        }
196
197        else if (loan>=300000 && loan<=400000) {
198
199             home="3";
200              pay=320000/200;
201              System.out.println("PACKAGE HOME 3");
202              System.out.println("DOUBLE STOREY ");
203              System.out.println("PRICE RM 320000 ");
204              System.out.println("HOUSE LOAN 30 YEARS ");
205
206
207        }
208
209
```

```
211        else if (loan>=400000 && loan<=600000) {
212
213             home="4";
214              pay=550000/200;
215              System.out.println("PACKAGE HOME 4");
216              System.out.println("SEMI D DOUBLE STOREY ");
217              System.out.println("PRICE RM 550000 ");
218              System.out.println("HOUSE LOAN 30 YEARS ");
219
220
221        }
222
223
224        else if (loan>=600000 && loan<=1000000) {
225
226             home="5";
227              pay=1000000/200;
228              System.out.println("PACKAGE HOME 5");
229              System.out.println("BUNGLOW");
230              System.out.println("PRICE RM 1000000 ");
231              System.out.println("HOUSE LOAN 30 YEARS ");
232
```

```
        System.out.print("\n***");

        System.out.print("\nPLEASE ENTER PACKAGE NUMBER IF YOU INTERESETED : ");

        home=sc.next();

        home.toUpperCase();

        if(home.equalsIgnoreCase(home)){

            switch(home){


            case "1":

                pay=(130000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;


            case "2":

                pay=(270000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;
```

```
            case "3":

                pay=(320000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;


            case "4":

                pay=(550000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;


            case "5":

                pay=(1000000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;
```

```
MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 3

PLEASE ENTER YOUR BUDGET PRICE :600000
PACKAGE HOME 4
SEMI D DOUBLE STOREY
PRICE RM 550000
HOUSE LOAN 30 YEARS

***
PLEASE ENTER PACKAGE NUMBER IF YOU INTERESETED : 4

PAKEJ 4

YOUR MONTHLY PAYMENT WILL BE :RM 2750.00
```

After that, in the system user can calculate the total of loan according the how many numbers of years they borrow at the bank.

```
304    static void futurehousevalue(){
305
306
307        System.out.println("\nENTER THE LOAN AMOUNT : ");
308
309
310        double loan =sc.nextDouble();
311
312
313        System.out.println("\nENTER THE INTERST RATE : ");
314
315        double interest = sc.nextDouble();
316
317        double monthlyinterest = interest /(12*100);
318
319
320        System.out.println("\nENTER THE NUMBER OF YEARS : ");
321
322        double time = sc.nextDouble();
323
324        double years = time * 12;
325
326
327        for(int i = 0; i < time; i++) {
328
329
330            double monthlypayment = (loan*monthlyinterest*Math.pow(1+monthlyinterest,years))/(Math.pow(1+monthlyinterest,years)-1);
331
332            double totalpayment = monthlypayment * years;
333
334            double yearlypayment = monthlypayment * 12;
335
336            double allpayment = yearlypayment * ((i+1)*12);
337
338
339             System.out.format(" Year No "+ (i+1) +" : RM %.2f", allpayment);
340
341             System.out.println("\n");
342
```

```
MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 4

ENTER THE LOAN AMOUNT :
300000

ENTER THE INTERST RATE :
3.80

ENTER THE NUMBER OF YEARS :
30

 Year No 1 : RM 201293.58

 Year No 2 : RM 402587.15

 Year No 3 : RM 603880.73
```

```
Year No 14 : RM 2818110.06

Year No 15 : RM 3019403.63

Year No 16 : RM 3220697.21

Year No 17 : RM 3421990.79

Year No 18 : RM 3623284.36

Year No 19 : RM 3824577.94

Year No 20 : RM 4025871.51

Year No 21 : RM 4227165.09

Year No 22 : RM 4428458.66

Year No 23 : RM 4629752.24

Year No 24 : RM 4831045.82
```

```
Year No 25 : RM 5032339.39

Year No 26 : RM 5233632.97

Year No 27 : RM 5434926.54

Year No 28 : RM 5636220.12

Year No 29 : RM 5837513.69

Year No 30 : RM 6038807.27
```

Lastly, the user can choose to exit the system by entering the number 5.

```
    static void exitSystem () {


        System.out.println("\n***********************************************");

        System.out.println("\nTHANK YOU FOR USING OUR SERVICE. SEE YOU AGAIN! ");

        System.out.println("\n***********************************************");

```

```
MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 5

***********************************************

THANK YOU FOR USING OUR SERVICE. SEE YOU AGAIN!

***********************************************
```

Numerical Data and Expression:

```
    static void calculator (Object loancalculator){

        System.out.println("\nENTER YOUR NAME : ");

        String name = sc.next();

        System.out.println("\nENTER THE LOAN AMOUNT : ");

        double loan =sc.nextDouble();

        System.out.println("\nENTER THE INTERST RATE : ");

        double interest = sc.nextDouble();

        double monthlyinterest = interest /(12*100);

        System.out.println("\nENTER THE NUMBER OF YEARS : ");

        double time = sc.nextDouble();

        double years = time * 12;

        double monthlypayment= (loan*monthlyinterest*Math.pow(1+monthlyinterest,years))/(Math.pow(1+monthlyinterest,years)-1);

        double totalpayment = monthlypayment * years;


        System.out.println("\n*---YOUR TOTAL MONTHLY PAYMENT AND TOTAL PAYMENT---*");

        System.out.println("\nTHE TOTAL MONTHLY PAYMENT IS RM "+ (Math.round(monthlypayment)));

        System.out.println("\nTHE TOTAL PAYMENT IS RM " + (Math.round(totalpayment)));
```

Selection Control Structures

```
        System.out.print("\nPLEASE ENTER YOUR BUDGET PRICE :");
        loan=(int)sc.nextDouble();

        if(loan>=100000 && loan<=200000){
            home="1";
            pay=130000/200;
            System.out.println("PACKAGE HOME 1 ");
            System.out.println("APARTMENT");
            System.out.println("PRICE RM 130000 ");
            System.out.println("HOUSE LOAN 30 YEARS");

        }else if (loan>=200000 && loan<=300000){
            home="2";
                pay=270000/200;
                System.out.println("PACKAGE HOME 2");
                System.out.println("SINGLE STOREY ");
                System.out.println("PRICE RM 270000 ");
                System.out.println("HOUSE LOAN 30 YEARS ");

        }else if (loan>=300000 && loan<=400000) {
            home="3";
              pay=320000/200;
              System.out.println("PACKAGE HOME 3");
              System.out.println("DOUBLE STOREY ");
              System.out.println("PRICE RM 320000 ");
              System.out.println("HOUSE LOAN 30 YEARS ");
         }else if (loan>=400000 && loan<=600000) {
            home="4";
              pay=550000/200;
              System.out.println("PACKAGE HOME 4");
              System.out.println("SEMI D DOUBLE STOREY ");
              System.out.println("PRICE RM 550000 ");
              System.out.println("HOUSE LOAN 30 YEARS ");

         }else if (loan>=600000 && loan<=1000000) {
            home="5";
              pay=1000000/200;
              System.out.println("PACKAGE HOME 5");
              System.out.println("BUNGLOW");
              System.out.println("PRICE RM 1000000 ");
              System.out.println("HOUSE LOAN 30 YEARS ");
           }
```

Repetition Structure

```
    do {

            System.out.println("\nMENU");
            System.out.println("\n1. REGISTER ");
            System.out.println("\n2. LOAN CALCULATOR ");
            System.out.println("\n3. TYPE HOUSE ");
            System.out.println("\n4. E-STATEMENT ");
            System.out.println("\n5. EXIT ");
            System.out.print("\nSELECT CHOOSE: ");
            menu = sc.nextInt();

            int i;
            int formatter = 0;
            switch (menu)
            {
            case 1:
                String [] housingloan=null ;
                Register (housingloan);
                break;

            case 2:
                Object loancalculator=null;
                calculator(loancalculator);
                break;

            case 3:
                String[] housetype = null;
                House(housetype);
                break;

            case 4:
                futurehousevalue();
                break;

            case 5:
                String exit =null;
                exitSystem();
                break;
            }
    }while (menu != 5);
```

Array

```
    for(int i = 0; i < time; i++) {


        double monthlypayment = (loan*monthlyinterest*Math.pow(1+monthlyinterest,years))/(Math.pow(1+monthlyinterest,years)-1);

        double totalpayment = monthlypayment * years;

        double yearlypayment = monthlypayment * 12;

        double allpayment = yearlypayment * ((i+1)*12);


        System.out.format("\n Year No "+ (i+1) +" : RM %.2f", allpayment);

        System.out.println("\n");
```

Passing Array to Methods

```
61
62  static void Register(String[] housingloan) {
63
64      Scanner sc = new Scanner(System.in);
65      String [] name = new String[15];
66      String [] acc_number = new String[15];
67      int [] phone_number = new int[10];
68      int a = 1;
69
70      System.out.println("");
71      System.out.println("\nXXXXXXXXXXXXXXXXXXX NEW USER XXXXXXXXXXXXXXXXXXXX");
72      System.out.println("");
73      System.out.println("\n__PLEASE INSERT THE INFORMATION DETAILS__");
74      System.out.println("");
75      System.out.print("\n Full Name : ");
76
77      name [a]= sc.next();
78      sc.nextLine();
79      System.out.print("\n Account Number: ");
80      acc_number [a]= sc.next();
81      System.out.print("\n Number Phone: ");
82      phone_number[a] =sc.nextInt();
83      System.out.println("");
84
85      System.out.println("\n--------THANK YOU FOR REGISTERING WITH US !---------");
86
87      System.out.println("\n--------NOW YOU ARE MEMBER OF GEMpak BANK !---------");
88
89  }
90
91  static void calculator (Object loancalculator){
92
```

Using Methods

```
39              case 1:
40
41                  String [] housingloan=null ;
42
43                  Register (housingloan);
44
45                  break;
46
47              case 2:
48
49                  Object loancalculator=null;
50
51                  calculator(loancalculator);
52
53                  break;
54
55              case 3:
56
57                  String[] housetype = null;
58
59                  House(housetype);
60
61                  break;
62
63              case 4:
64
65                  futurehousevalue();
66
67                  break;
```

2.6 Investment

Customers will automatically be in investment section when they choose number 5 as their selection from the menu. After that, the system will list out the menu for investment which means the customer have to do all the list given one by one if they want to know about the calculation for term-investment. After get enter for investment section, the customer needs to choose 1 and then need to fill the information likes name, phone number, and account number.

```
static void Register(String[] investor) {

        String [] name = new String[15];
        int [] phone_number = new int[10];
        String [] acc_number = new String[15];


        System.out.print(" Please enter your name: ");
        name [count]= scan.next();
        scan.nextLine();
        System.out.print(" Please enter your phone number: ");
        phone_number[count] =scan.nextInt();
        System.out.print(" Please enter your account number: ");
        acc_number [count]= scan.next();

        x[count] = name [count];
        y[count] = phone_number[count];
        z[count] = acc_number [count];
        count++;
    }
static void investmentAmount(Object investamount) {
```

```
This are in the Invesment Section .

Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 1
 Please enter your name: Syakir Aiman Bin Nordin
 Please enter your phone number: 01136660272
 Please enter your account number: 151546987
Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
```

Then, the system will list the menu again. So, customer have to choose 2 to do investment. After that, customer needs to fill in the investment amount and investment tenure. Investment amount should be put between Rm1000 to Rm 50000. If they put others values, so the system will show the message, which is “PLEASE PUT AMOUNT BETWEEN RM1000 TO RM50000”. If not, the system will be said “Please Follow Instruction!”. For investment tenure, system will ask the customer to put the investment tenure only for 3,6 and 12. For every investment tenure, it has been different percentage net to customer which is for 3 months is 3.2%, 6 months is 3.8% and for 12 months is 4.2%. Then, system will calculate profit payable to customers, accumulated profit and total amount.

```
int invest_amount, invest_tenure;
double percent, profitpayabletocust, accumulatedprofit, totalamount;

do {
System.out.println(" Enter your Investment amount : ");
invest_amount = scan.nextInt();

percent = 0;
if((invest_amount >= 1000)&&(invest_amount <= 10000)) {
    percent = 3.2;
} else if ((invest_amount >= 10001)&&(invest_amount <= 30000)) {
    percent = 3.8;
} else if ((invest_amount>= 30001)&& (invest_amount <= 50000)) {
    percent = 4.2;
}else {
    System.out.println("PLEASE PUT AMOUNT BETWEEN RM1000 TO RM50000 !");
}
}
while((invest_amount < 1000)||(invest_amount>50000));

int f=1;
do {
System.out.println("PLEASE PUT 3 OR 6 OR 12 ONLY!");
System.out.println(" Enter Investment tenure : ");
invest_tenure = scan.nextInt();

if (invest_tenure == 3){
    System.out.println("Calculation in Progress.");
    f=2;
}else if (invest_tenure == 6){
    System.out.println("Calculation in Progress.");
    f=2;
}else if (invest_tenure == 12){
     System.out.println("Calculation in Progress.");
     f=2;
}else {
    System.out.println("Please Follow Instruction !");
}
}
while (f==1);


profitpayabletocust = invest_amount * percent/100 * 30/365;
accumulatedprofit = profitpayabletocust * invest_tenure ;
totalamount = invest_amount + accumulatedprofit ;

System.out.println("");
System.out.println("Calculation Done !");
System.out.println("");
System.out.format(" Profit Payable to Customer : RM %.2f", profitpayabletocust);
System.out.println("\n");
System.out.format(" Accumulated Profit : RM %.2f", accumulatedprofit);
System.out.println("\n");
System.out.format(" Total Amount : RM %.2f", totalamount);
System.out.println("\n");
```

```
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 2
 Enter your Investment amount :
47500
PLEASE PUT 3 OR 6 OR 12 ONLY!
 Enter Investment tenure :
6
Calculation in Progress.

Calculation Done !

 Profit Payable to Customer : RM 163.97

 Accumulated Profit : RM 983.84

 Total Amount : RM 48483.84

Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
```

After that, it will show the menu again. So, if customer want to see the future value for the investment by month, choose 3. Then, system will list the amount by month.

```
static void futureInvestmentValue(double invest_amount, double percent, int invest_tenure) {

   double  profitpayabletocust, accumulatedprofit, totalamount;

   System.out.println("\t Month       Future Value");
   for(int i = 0; i < invest_tenure; i++) {

       profitpayabletocust = invest_amount * percent/100 * 30/365;
       accumulatedprofit = profitpayabletocust * (i+1) ;
       totalamount = invest_amount + accumulatedprofit ;

       System.out.format("\t Month No "+ (i+1) +" : RM %.2f", totalamount);
       System.out.println("\n");
   }
}
```

```
4. Get Receipt
5. Exit
Select choose : 3
         Month       Future Value
         Month No 1 : RM 47663.97

         Month No 2 : RM 47827.95

         Month No 3 : RM 47991.92

         Month No 4 : RM 48155.89

         Month No 5 : RM 48319.86

         Month No 6 : RM 48483.84
```

Next, if customer want to print receipt, choose 4. Then, system will show the customer's name, phone numbers, account numbers, date of registration, date of maturity, profit payable to customer, accumulated profit, total amount and future values.

```
static void printReceipt(String name[], int phone_number[], String acc_number[], double invest_amount, double percent, int invest_tenure
    double  profitpayabletocust, accumulatedprofit, totalamount;

   System.out.println("_____");
   System.out.println("\n\t          GEMpak BANK E-Receipt");

         System.out.println(" \tName \tPhone Number \tAccount Number  \n");
      for(int i = 0; i < count; i++)
      {
          System.out.println( "\t" + name[i] + "\t" + "0"+phone_number[i] + "\t" + acc_number[i] + "\t" );
      }

      int noOfDays = 0;
      if(invest_tenure == 3) {
          noOfDays = 90;
      } else if (invest_tenure == 6) {
          noOfDays = 180;
      } else if(invest_tenure == 12) {
          noOfDays = 365;
      }
       Calendar cal = Calendar.getInstance();
       Date cdate = cal.getTime();
       cal.add(Calendar.DAY_OF_YEAR, noOfDays);
       Date date = cal.getTime();

      System.out.println("\n\tRegistration Date : "+ cdate);
      System.out.println("\n\tMaturity Date : "+ date);


      profitpayabletocust = invest_amount * percent/100 * 30/365;
      accumulatedprofit = profitpayabletocust * invest_tenure ;
      totalamount = invest_amount + accumulatedprofit ;

      System.out.println("");
      System.out.format("\tProfit Payable to Customer : RM %.2f", profitpayabletocust);
      System.out.println("\n");
      System.out.format("\tAccumulated Profit : RM %.2f", accumulatedprofit);
      System.out.println("\n");
      System.out.format("\tTotal Amount : RM %.2f", totalamount);
      System.out.println("\n");

      a = invest_amount;
      b = percent;
      c = invest_tenure;

      futureInvestmentValue(a,b,c);

      System.out.println("*This is computer generated receipt, no signature required. ");
      System.out.println("_____");
```

```
Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 4
_____

                GEMpak BANK E-Receipt
        Name    Phone Number    Account Number

        Syakir  01136660272     151546987

        Registration Date : Sat Feb 05 13:40:30 MYT 2022

        Maturity Date : Thu Aug 04 13:40:30 MYT 2022

        Profit Payable to Customer : RM 163.97

        Accumulated Profit : RM 983.84

        Total Amount : RM 48483.84

         Month       Future Value
         Month No 1 : RM 47663.97

         Month No 2 : RM 47827.95

         Month No 3 : RM 47991.92

         Month No 4 : RM 48155.89

         Month No 5 : RM 48319.86

         Month No 6 : RM 48483.84

*This is computer generated receipt, no signature required.
_____
Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 5
-------------------------------------------------

        THANK YOU FOR USING OUR SERVICE.

-------------------------------------------------
```

Lastly, customer can exit the system by choosing 5. Then, we will print thank you for choosing our service.

```
      futureInvestmentValue(a,b,c);

      System.out.println("*This is computer generated receipt, no signature required. ");
      System.out.println("_____");

}
static void exitSystem(String exit) {
   System.out.println("-------------------------------------------------- \n");
   System.out.println(" \t THANK YOU FOR USING OUR SERVICE.  \n");
   System.out.println("-------------------------------------------------- \n");
}
```

```
Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 5
-------------------------------------------------

        THANK YOU FOR USING OUR SERVICE.

-------------------------------------------------
```

Numerical Data and Expression (Investment)

```
static void Register(String[] investor) {

        String [] name = new String[15];
        int [] phone_number = new int[10];
        String [] acc_number = new String[15];


        System.out.print(" Please enter your name: ");
        name [count]= scan.next();
        scan.nextLine();
        System.out.print(" Please enter your phone number: ");
        phone_number[count] =scan.nextInt();
        System.out.print(" Please enter your account number: ");
        acc_number [count]= scan.next();

        x[count] = name [count];
        y[count] = phone_number[count];
        z[count] = acc_number [count];
        count++;
    }
```

Selection Control Structures

```
        int invest_amount, invest_tenure;
        double percent, profitpayabletocust, accumulatedprofit, totalamount;

        do {
        System.out.println(" Enter your Investment amount : ");
        invest_amount = scan.nextInt();

        percent = 0;
        if((invest_amount >= 1000)&&(invest_amount <= 10000)) {
            percent = 3.2;
        } else if ((invest_amount >= 10001)&&(invest_amount <= 30000)) {
            percent = 3.8;
        } else if ((invest_amount>= 30001)&& (invest_amount <= 50000)) {
            percent = 4.2;
        }else {
            System.out.println("PLEASE PUT AMOUNT BETWEEN RM1000 TO RM50000 !");
        }
        }
        while((invest_amount < 1000)||(invest_amount>50000));

        int f=1;
        do {
        System.out.println("PLEASE PUT 3 OR 6 OR 12 ONLY!");
        System.out.println(" Enter Investment tenure : ");
        invest_tenure = scan.nextInt();

        if (invest_tenure == 3){
            System.out.println("Calculation in Progress.");
            f=2;
        }else if (invest_tenure == 6){
            System.out.println("Calculation in Progress.");
            f=2;
        }else if (invest_tenure == 12){
             System.out.println("Calculation in Progress.");
             f=2;
        }else {
            System.out.println("Please Follow Instruction !");
        }
        }
        while (f==1);
```

Repetition Structures

```
        int invest_amount, invest_tenure;
        double percent, profitpayabletocust, accumulatedprofit, totalamount;

        do {
        System.out.println(" Enter your Investment amount : ");
        invest_amount = scan.nextInt();

        percent = 0;
        if((invest_amount >= 1000)&&(invest_amount <= 10000)) {
            percent = 3.2;
        } else if ((invest_amount >= 10001)&&(invest_amount <= 30000)) {
            percent = 3.8;
        } else if ((invest_amount>= 30001)&& (invest_amount <= 50000)) {
            percent = 4.2;
        }else {
            System.out.println("PLEASE PUT AMOUNT BETWEEN RM1000 TO RM50000 !");
        }
        }
        while((invest_amount < 1000)||(invest_amount>50000));

        int f=1;
        do {
        System.out.println("PLEASE PUT 3 OR 6 OR 12 ONLY!");
        System.out.println(" Enter Investment tenure : ");
        invest_tenure = scan.nextInt();

        if (invest_tenure == 3){
            System.out.println("Calculation in Progress.");
            f=2;
        }else if (invest_tenure == 6){
            System.out.println("Calculation in Progress.");
            f=2;
        }else if (invest_tenure == 12){
             System.out.println("Calculation in Progress.");
             f=2;
        }else {
            System.out.println("Please Follow Instruction !");
        }
        }
        while (f==1);
```

Array

```
static void futureInvestmentValue(double invest_amount, double percent, int invest_tenure) {

   double  profitpayabletocust, accumulatedprofit, totalamount;

   System.out.println("\t Month       Future Value");
   for(int i = 0; i < invest_tenure; i++) {

       profitpayabletocust = invest_amount * percent/100 * 30/365;
       accumulatedprofit = profitpayabletocust * (i+1) ;
       totalamount = invest_amount + accumulatedprofit ;

       System.out.format("\t Month No "+ (i+1) +" : RM %.2f", totalamount);
       System.out.println("\n");
   }
}
```

Passing Array to Method

```
}
static void exitSystem(String exit) {
   System.out.println("------------------------------------------------ \n");
   System.out.println(" \t THANK YOU FOR USING OUR SERVICE.  \n");
   System.out.println("------------------------------------------------ \n");
}
```

Using Method

```
    int i;
    int formatter = 0;
    switch (choose)
    {
        case 1:
            String[] investor = null;
            Register(investor);
            break;
        case 2:
            Object investamount = null;
            invesmentAmount(investamount);
            break;
        case 3:
            futureInvestmentValue(a,b,c);
            break;
        case 4:
            printReceipt(x, y, z, a,b,c);
            break;
        case 5:
        String exit = null;
        exitSystem(exit);
            break;
    }
} while (choose != 5);
```

3.0 Code

3.1 Main menu

```
package javaProject;

import java.util.Scanner;
public class Project {

    public static Scanner sc = new Scanner (System.in);

    public static void main(String[] args) {
        char choices;
        Scanner sc = new Scanner (System.in);
        do {
        System.out.println("******####### WELCOME TO GEMpak BANK ########*******");
        System.out.println("MAIN MENU");
        System.out.println("1. BUSINESS LOAN");
        System.out.println("2. PERSONAL ACCOUNT");
        System.out.println("3. CREDIT CARD");
        System.out.println("4. HOUSING LOAN");
        System.out.println("5. INVESTMENT");
        System.out.println("******##########################################*******");
        System.out.print("Please choose your service :");
        int service = sc.nextInt();

        if(service==1) {
            businessLoan b = new businessLoan();
            b.main(args);
        }
        else if(service==2) {
            personalAccount p = new personalAccount();
            p.main(args);
        }
        else if(service==3) {
            creditCard c = new creditCard();
            c.main(args);
        }
        else if(service==4) {
            HousingLoan h = new HousingLoan();
            h.main(args);
        }

        else if(service==5) {
            investment i = new investment();
            i.main(args);
        }
        else {
            System.out.println("Invalid Number ! Please Try Again");
        }

        System.out.println("");
        System.out.println("DO YOU WANT TO RETURN TO THE MAIN MENU  ? Y=YES N=NO");
        choices = sc.next().charAt(0);
        }while (choices =='y' || choices =='Y');

        System.out.println("#####################################################################");
        System.out.println("              <<<<<<YOU CHOOSE TO EXIT>>>>>>  ");
        System.out.println("           <THANK TOU FOR USING THIS BANK SERVICE> ");
        System.out.println("Any problem, feel free to contact our customer service or email us! ");
        System.out.println("Customer service number : 09 895 9432");
        System.out.println("Email : GEMpakBank@gmail.com");
        System.out.println("#####################################################################");

    }
}
```

3.2 Business loan

```
package javaProject;

import java.util.Scanner;

public class businessLoan {

    public static Scanner sc = new Scanner (System.in);
    public static String name[] = new String [50];
    public static String acc_num [] = new String [50];
    public static String phone_num [] = new String [50];
    public static int age [] = new int [50];
    public static int amount [] = new int [50];
    public static int tenure [] = new int [50];
    public static int choice, i = 0, total = 0, x;
    public static double interest = 0.045;
    public static double monthlyPayment [] = new double [50];
    public static double totalPayment [] = new double [50];

    public static void displayMenu () {
        System.out.println("MAIN MENU");
        System.out.println("1. Information of Loan");
        System.out.println("2. Type of application method");
        System.out.println("3. Information about application method");
        System.out.println("4. The interest rate");
        System.out.println("5. Input information");
        System.out.println("6. View Record");
        System.out.println("7. Exit");
        System.out.println("PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:");
        choice = sc.nextInt();
    }

    public static void Information() {
        System.out.println("------------------------------------------------------------");
        System.out.println("This is information about Loan ");
        System.out.println("------------------------------------------------------------");
        System.out.println("Eligibility:");
        System.out.println("-Below RM25 million annual sales turnover");
        System.out.println("-Below RM5 million outstanding loan/financing with GEMpak");

      System.out.println("-Malaysian-owned registered company");
      System.out.println("-More than 1 year in operation");
      System.out.println("------------------------------------------------------------");

      System.out.println("");
      System.out.println("Enter 00 to back to main menu :");
      int next = sc.nextInt();
      System.out.println("");
   }

   public static void TypeApplication(){
          System.out.println("There are 2 types of application method: ");
          System.out.println("1.  By online application");
          System.out.println("2.  By branch application");

          System.out.println("");
          System.out.println("Enter 00 to back to main menu :");
          int next = sc.nextInt();
          System.out.println("");
      }

   public static void ApplicationInformation()
       {
          System.out.println("Not sure which application method suits you better? Here are the key differences to help you decide:");
          System.out.println("");
          System.out.println("1.  Online Application");
          System.out.println("    a) Financing amount: RM10,000 - RM250,000");
          System.out.println("    b) Financing tenure: Up to 5 years");
          System.out.println("    c) Business operation period: Minimum 1 year");

          System.out.println("");
          System.out.println("2.  Branch Application");
          System.out.println("    a) Financing amount: RM50,001- RM1,500,000");
          System.out.println("    b) Financing tenure: Up to 7 years");
          System.out.println("    c) Business operation period: Minimum 3 year");

```

```
            System.out.println("");
            System.out.println("Enter 00 to back to main menu :");
            int next = sc.nextInt();
            System.out.println("");
        }

    public static void Interest() {
            System.out.println("The interest rate is 4.5%");

            System.out.println("");
            System.out.println("Enter 00 to back to main menu :");
            int next = sc.nextInt();
            System.out.println("");
        }

    public static void Input() {
        char choiceAdd;

        do {
        System.out.println("Enter your name: ");
        name[i] = sc.next()+sc.nextLine();
        System.out.println("Enter your number phone: ");
        phone_num[i] = sc.next()+sc.nextLine();
        System.out.println("Enter your account number: ");
        acc_num[i] = sc.next()+sc.nextLine();

        System.out.println("Enter business operation period (in months): ");
        int period = sc.nextInt();

        System.out.println("Enter your annual revenue: ");
        int revenue = sc.nextInt();

        if ((period >= 12) && (revenue <= 25000000)) {
        System.out.println("Enter the amount of loan: ");
        amount[i] = sc.nextInt();
        System.out.println("Enter financing tenure: ");
        tenure[i] = sc.nextInt();
        }else
            System.out.println("Sorry, you did not qualified to make a business loan");

        CalculatePayment(i);

        System.out.println("Enter 1 to proceed to monthly payment calculation");
        int next = sc.nextInt();
        System.out.printf("Monthly payment is RM %.2f%n" , monthlyPayment[i]);
        System.out.printf("Total payment is RM %.2f%n" , totalPayment[i]);
        System.out.println("RECORD HAS BEEN ADDED SUCCESSFULLY!!\n");
        System.out.println("----------------------------------------");
        System.out.println("DO YOU WANT TO ADD ANOTHER INPUT (Y/N): ");
        choiceAdd = sc.next().charAt(0);
        System.out.println("----------------------------------------");
        i++;
        }while ((choiceAdd == 'y') || (choiceAdd == 'Y'));
        System.out.println("Enter 00 to back to main menu :");
        int next = sc.nextInt();
        System.out.println("");
    }

    public static void CalculatePayment(int index) {
        System.out.println("");
        monthlyPayment[index] = amount[index] * (interest / 12) / ( 1 - 1 / Math.pow(1 + (interest / 12), tenure[index] * 12));
        totalPayment[index] = monthlyPayment[index] * tenure[index] * 12;

    }

    public static void ViewRecord() {
        System.out.println("-------------------------------------------------------------------------------------------------------------------------------------------");
        System.out.printf("%-20s%-20s%-20s%-20s%-20s%-10s\n","Name", "Phone", "Account Number", "Loan amount (RM)", "Monthly payment(RM)", "Total payment(RM)");
        System.out.println("-------------------------------------------------------------------------------------------------------------------------------------------");

        for (int j = 0; j < i; j++) {
            System.out.printf("%-20s%-20s%-20s%-20s%-20.2f%-10.2f\n", name[j], phone_num[j], acc_num[j], amount[j], monthlyPayment[j], totalPayment[j]);
```

```
        }
        System.out.println("-------------------------------------------------------------------------------------------------------------------------------------------------------")
        System.out.println("Enter 00 to back to main menu :");
        int next = sc.nextInt();
        System.out.println("");
    }


    public static void main(String[] args) {
        // TODO Auto-generated method stub
        String contact [] = {"Zakri", "Ahmad", "Siti"};
        do {
            displayMenu();

        switch (choice) {
        case 1 : Information();
        break;
        case 2 : TypeApplication();
        break;
        case 3 : ApplicationInformation();
        break;
        case 4 : Interest();
        break;
        case 5 : Input();
        break;
        case 6 : ViewRecord();
        break;
        case 7 : exitSystem(contact);
        break;
        }
        }while (choice != 7);
    }
    static void exitSystem(String [] contact) {
        System.out.println("If you have any problem about business loan, you can contact our customer service: ");

        contact [0] = "Zakri";

        contact [1] = "Ahmad";
        contact [2] = "Siti";

        System.out.println("-----------------------------------");
        System.out.println(" 1    " + contact [0] + "         011 7789 5464 " );
        System.out.println("-----------------------------------");
        System.out.println(" 2    " + contact [1] + "         011 8942 1215 " );
        System.out.println("-----------------------------------");
        System.out.println(" 3    " + contact [2] + "          019 6539 844  " );
        System.out.println("-----------------------------------");

        System.out.println("\nOr you can email or you can go to our website");
        System.out.println("\nEmail : bankGEMbusinessLoan@gmail.com");
        System.out.println("Website : bankgembusinessloan.com.my");
    }

}
```

3.3 Personal account

```
package bank;
import java.util.Scanner;
public class PersonalAccount {

    static Scanner sc = new Scanner (System.in);

    public static void main(String[] args) {

int choose;
do
{
        System.out.println("_____________________________________________________");
        System.out.println("############# WELCOME TO GEMpak BANK #############");
        System.out.println("#  1.   Register New User                         #");
        System.out.println("#  2.   DuitNow                                   #");
        System.out.println("#  3.   Exit                                      #");
        System.out.println("##################################################");

        System.out.print("CHOOSE ONE OF THE OPTION ABOVE : ");
        choose = sc.nextInt();

int i;
switch (choose)
{
   case 1:
       String[] user = null;
       Register(user);
       break;
   case 2:
       String DuitNow = null;
       Duitnow(DuitNow);
```

```
       break;
   case 3:
    String exit = null;
    exitSystem(exit);
       break;
}
} while (choose != 3);
}

    static void Register(String [] user) {

        String [] name = new String[15];
        String [] acc_number = new String[15];
        int [] phone_number = new int[10];
        int a = 1;

        System.out.println("");
        System.out.println("XXXXXXXXXXXXXXXXXX NEW USER XXXXXXXXXXXXXXXXXXXX");
        System.out.println("");
        System.out.println("______PLEASE INSERT THE INFORMATION DETAILS______");
        System.out.println("");
        System.out.print(" Full Name : ");
        name [a]= sc.next();
        sc.nextLine();
        System.out.print(" Account Number: ");
        acc_number [a]= sc.next();
        System.out.print(" Number Phone: ");
        phone_number[a] =sc.nextInt();
        System.out.println("");
        System.out.println("--------THANK YOU FOR REGISTERING WITH US !---------");
```

```java
        System.out.println("--------NOW YOU ARE MEMBER OF GEMpak BANK !---------");

    }

    static void Duitnow(Object duitNow) {

        int addedTime=0;
        char addtransaction='X',back='X';

        //Array
        int length=10;
        int[] acc= new int[length];
        double[] amount1=new double[length];
        double total1;
        String[] acc1= new String[length];
        String[] bankname1= new String[length];
        String[] name1= new String[length];
        String[] reference1= new String[length];
        //Array End

        System.out.println("");
        String anotherBank = sc.nextLine();

        System.out.println("XXXXXXXXXXXXXXXXXXX DuitNow XXXXXXXXXXXXXXXXXXXXX");
        System.out.println("");

        for (int i=0; i < length; i++) {
            i=addedTime;
        System.out.print("Your Account Number : ");
        acc[i]= sc.nextInt();
        System.out.println("");
        System.out.println("______PLEASE INSERT THE INFORMATION DETAILS______");
        System.out.print("Recipient Bank Name : ");
        bankname1[i]=sc.nextLine();
        sc.nextLine();
        System.out.print("Recipient Account : ");
        acc1[i]=sc.nextLine();
        System.out.print("Recipient Name : ");
        name1[i]=sc.nextLine();
        System.out.print("Recipient Reference : ");
        reference1[i]=sc.nextLine();
        System.out.print("Amount : RM ");
        amount1[i]= sc.nextInt();

        System.out.println("^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^");
        System.out.println("^  *Fee : 2%                                                           ^");
        System.out.println("^  *Please take note that RM1.00 will be charged for every transaction ^");
        System.out.println("^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^");

        System.out.println("CHOOSE 1 TO CONTINUE !");
        int next1 = sc.nextInt();
        String anotherBank1 = sc.nextLine();

        System.out.print("Total that have been charged : RM ");
         total1 =amount1[i]+((amount1[i]*0.02)+1);
        System.out.printf("%.2f",  total1);
        System.out.println("\n");
```

```
        System.out.println("");
        System.out.println("-------------------------------------------------------");
        System.out.println("          **TRANSACTION SUCCESSFULL**                  ");
        System.out.println("-------------------------------------------------------");
        System.out.println("");
        addedTime++;
        //ADD transaction
        System.out.print("DO YOU WANT TO ADD ANOTHER TRANSACTION? (Y/N) : ");
        addtransaction=sc.next().charAt(0);
        if (addtransaction=='N'||addtransaction=='n') {
            back='y';
            i=length;//break the Loop

    }
        }
    }

     static void exitSystem(String exit) {
        System.out.println("-------------------------------------------------- ");
        System.out.println("       THANK YOU FOR USING GEMpak BANK          ");
        System.out.println("-------------------------------------------------- ");

```

```
System.out.print("_____________________________________________________________________________________________________");
System.out.println("\n");

System.out.println("##    ##     ##    #########  #########  ##        ##      ######## ######### ######## #########    ### ### ");
System.out.println("##    ##   ##  ##  ##     ##  ##     ##  ##      ##       ######## ######### ######## #########    ### ### ");
System.out.println("#########  ##    ## ##     ##  ##     ##   ###   ###             ## ##     ##       ##        ##    ### ### ");
System.out.println("######## ######### #########  #########     #####          ######## ##     ## ######## #########    ### ### ");
System.out.println("##    ## ##     ## ##         ##              ##           ##       ##     ## ##       ##           ### ### ");
System.out.println("##    ## ##     ## ##         ##              ##           ######## ######### ######## #########          ");
System.out.println("##    ## ##     ## ##         ##              ##           ######## ######### ######## #########    ### ### ");
System.out.print("_____________________________________________________________________________________________________");

System.out.println("\n");
System.out.println("                                TO OUR BELOVED GEMpak BANK USER <3                                   ");
System.out.println("                             We are going to send you some present to you <3                         ");
System.out.print("_____________________________________________________________________________________________________");
System.out.println("\n                              LETS PLAY A GUESS NUMBER GAME FIRST !!                               ");
System.out.println("\n                    You Will Be Asked To Guess A Number Before Proceed to your gifts               ");
System.out.println("                                    You can attempt 5 times                                        ");

int number = 1 + (int)(100 * Math.random());
int K = 5;
int i, guess;

System.out.println("\nA number is chosen" + " between 1 to 100.");

for (i = 0; i < K; i++) {

System.out.println("Guess the number:");
guess = sc.nextInt();

       if (number == guess) {

       System.out.println("Congratulations!" + " You guessed the number.");

      break;
}
      else if (number > guess && i != K - 1) {

      System.out.println("The number is " + "greater than " + guess);
}

      else if (number < guess && i != K - 1) {

      System.out.println("The number is" + " less than " + guess);
}
}
       if (i == K) {

      System.out.println("You have exceeded the maximum attempts.");
      System.out.println("The number is " + number);
}
       System.out.print("_____________________________________________________________________________________________________");
       System.out.println("\n");
       System.out.println("                                PLEASE CHOOSE YOUR GIFTS<3                                   ");
       System.out.println("\n1.Notebook + Calender      ");
       System.out.println("\n2.Bag + Calender           ");
       System.out.println("\n3.Tumblr Bottle + Calender ");
       System.out.println("\n4.We Bare Bear + Calender  ");
       System.out.println("\n5.Colour Pencil + Calender ");
       System.out.print("\nInsert the NUMBER : ");
```

```
        int gift=0;
        gift = sc.nextInt();

if (gift == 1) {
    System.out.println("\nYou choose Notebook and 2022 Calender as a gift.     ");
}
else if(gift == 2) {
    System.out.println("\nYou choose Bag and 2022 Calender as a gift.          ");
}
else if (gift == 3) {
    System.out.println("\nYou choose Tumblr Bottle and 2022 Calender as a gift.");
}
else if (gift == 4) {
    System.out.println("\nYou choose We Bare Bear and 2022 Calender as a gift. ");
}
else if (gift == 5) {
    System.out.println("\nYou choose Colour Pencil and 2022 Calender as a gift.");
}
else {
System.out.println("\nYou don't choose any gift.");
}

sc.close();
        System.out.println("\n      PLEASE BE NOTED THAT YOUR GIFT WILL ARRIVED TO YOUR HOUSE WITHIN 2 WEEKS.");
        System.out.println("########################## THANK YOU FOR USING GEMpak BANK ##########################");

}
}
```

3.4 Credit card

```java
package project;

import java.util.Scanner;

public class FinalProject {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner scanMe = new Scanner (System.in);

        int b;
        do {
        System.out.println("*****Welcome to GEMpak Bank Credit Card*****");
        System.out.println("MAIN MENU:");
        System.out.println();
        System.out.println("1.payment using credit card");
        System.out.println("2.Gift shop");
        System.out.println("3.Credit Card Calculator");
        System.out.println("4.Exit");
        System.out.println();
        System.out.println("*********************************************************************************");
        System.out.println();
        System.out.println("choose what you want to do:");
        b = scanMe.nextInt();

        switch(b)
        {

        case 1:
        System.out.println("You choose credit card payment");
        printcreditcard();
        break;

        case 2:
        System.out.println("You choose gift shop");
        printgiftshop();
        break;
```

```java
        case 3:
        System.out.println("You choose credit card calculator");
        printCreditCardcalculator();
        break;

        case 4:
            System.out.println("thank you for using our program");
            break;
        }

        }while(b !=4);

}



        public static void printcreditcard() {
            System.out.println("Welcome to credit card payment");
        String name;


        double limit1 = 40000;// limit for credit card type
        double limit2 = 80000;
        double limit3 = 65000;

        Scanner scanMe = new Scanner (System.in);

        System.out.println("This month is June");

        System.out.println("purchase for smartphone and laptop made in 10/6/2021:");
        System.out.println();
        System.out.println("how much ammount for smartphone:");
        double smartphone = scanMe.nextDouble();
        System.out.println("whats ammount for laptop:");
```

```
        double laptop = scanMe.nextDouble();
        System.out.println();

        System.out.println("purchase for petrol,air plane ticket, insurance and house debt made in 20/6/2021:");
        System.out.println();
        System.out.println("how much ammount for petrol:");
        double petrol = scanMe.nextDouble();
        System.out.println("how much ammount for air plane ticket:");
        double airplaneTicket = scanMe.nextDouble();
        System.out.println("how much ammount for insurance:");
        double Insurance = scanMe.nextDouble();
        System.out.println("how much ammount for house debt:");
        double houseDebt = scanMe.nextDouble();
        System.out.println();

        System.out.println("purchase for car devt and hotel booking made in 30/6/2021:");
        System.out.println();
        System.out.println("how much ammount for car debt:");
        double carDebt = scanMe.nextDouble();
        System.out.println("how much ammount for hotel booking:");
        double HotelBooking = scanMe.nextDouble();

        System.out.println("Purchase to be made in June using Credit Card:");
        System.out.println("_____________________________________________");
        System.out.println("|DATE       |ITEM                |PRICE    |");
        System.out.println("|___________|____________________|_________|");
        System.out.println("| 10/6/2021 |* SMARTPHONE        |RM"+ smartphone +" |");
        System.out.println("|           |* LAPTOP            |RM"+ laptop + " |");
        System.out.println("|___________|____________________|_________|");
        System.out.println("| 20/6/2021 |*PETROL             |RM"+ petrol +  "   |");
        System.out.println("|           |*AIRPLANE TICKET    |RM"+ airplaneTicket + "  |");
        System.out.println("|           |*INSURANCE          |RM"+ Insurance + "   |");
        System.out.println("|           |*HOUSE DEBT         |RM"+ houseDebt + "   |");
        System.out.println("|___________|____________________|_________|");
        System.out.println("| 30/6/2021 |*CAR DEBT           |RM"+ carDebt +"  |");
        System.out.println("|           |*HOTEL BOOKING      |RM"+ HotelBooking +"   |");
        System.out.println("|___________|____________________|_________|");



        double totalpayment = smartphone + laptop + petrol + airplaneTicket + Insurance + houseDebt + carDebt + HotelBooking;


        System.out.println("_____________________________________________________________________________________");
        System.out.println("|TYPE |TYPE                                | CREDIT CARD NUMBER| EXPARITION DATE| CCV|");
        System.out.println("|_____|____________________________________|___________________|________________|____|");
        System.out.println("|  1  |GEMpak e Credit Card                |1111-2222-3333-4444|     21/27      | 445|");
        System.out.println("|_____|____________________________________|___________________|________________|____|");
        System.out.println("|  2  |GEMpak Petronas Platinum MasterCard |2324-5957-9128-5387|     09/28      | 499|");
        System.out.println("|_____|____________________________________|___________________|________________|____|");
        System.out.println("|  3  |GEMpak Platinum Explore Credit Card-i |7979-6124-6996-9000|     01/25      | 321|");
        System.out.println("|_____|____________________________________|___________________|________________|____|");



            System.out.println("Choose what credit type you want to use:");
            int a = scanMe.nextInt();
        if(a==1) {

            System.out.println("You choose GEMpak e Credit Card");
            System.out.println("Your balance for this credit card is" + limit1);
            double balance = limit1 - totalpayment;
            System.out.println("Your limit for CIMB e Credit Card is:" + balance);

        }



            else if(a==2) {
                System.out.println("You choose GEMpak Petronas Platinum MasterCard");
                System.out.println("Your balance for this credit card is" + limit2);
                System.out.println("You have 7% cashback for this credit card");
                double balance = limit2 - totalpayment;
```

```
            double cashback = (0.07) * (petrol);
            System.out.println("Your limit for GEMpak Petronas Platinum MasterCard is:RM" + balance);
            System.out.println("Your Cashback is:RM" + cashback);

        }
        else if(a==3) {
            System.out.println("You choose GEMpak Platinum Explore Credit Card-i");
            System.out.println("Your balance for this credit card is" + limit3);
            System.out.println("You have 5% cashback for this credit card");
            double balance = limit3 - totalpayment;
            double cashback = ((0.05) * (airplaneTicket)) + ((0.05) *(HotelBooking));
            System.out.println("Your limit for Bank Rakyat Platinum Explore Credit Card-i is:" + balance);
            System.out.println("Your Cashback is:RM" + cashback);

        }
        else {
            System.out.println("Unknown Credit Card");
        }

    // divide 12 is to know what minimum amount to pay for a month
    double smartphoneDebt1 = (smartphone/12);
    double laptopDebt1 = (laptop/12);
    double petrolDebt1 = (petrol/12);
    double airplaneTicketDebt1 = (airplaneTicket/12);
    double InsuranceDebt1 = (Insurance/12);
    double houseDebt1 = (houseDebt/12);
    double carDebt1 = (carDebt/12);
    double HotelBookingDebt1 = (HotelBooking/12);
    double AllDebt1 = smartphoneDebt1 + laptopDebt1 + petrolDebt1 + airplaneTicketDebt1 + InsuranceDebt1 + houseDebt1 + carDebt1 + HotelBookingDebt1;
    System.out.println("Total debt to be pay per monthly is RM:" + AllDebt1);

    System.out.println("Your unpaid Debt for this credit card is RM1000");
    double Debt1 = 1000 * 9;// coming from the debt that not being paid last month// its from 1 - 9 June
    double Debt2 = 6000 * 9;// 8600 came from total of Debt1 and laptop // its from 10 - 19 June
    double Debt3 = 7074 * 9;// its from 20 - 29 June
    double Debt4 = 7768 * 1;// June 30
    double MonthlyInterest = (Debt1 + Debt2 + Debt3 + Debt4)/30;
```

```

    System.out.println();
    System.out.println("Whats you current money:");
    double currentmoney = scanMe.nextDouble();
        double DPR = 15/365;


            double MonthlyIntrestRate = DPR * 30;// * 30 because June have 30 days
            System.out.println("The annual interest rate for 3 credit card is 15%");
            double rate = (15/100) * (MonthlyIntrestRate);
            double monthlydebt = AllDebt1 + rate;
            System.out.println("your charge payment for this month is RM:");
            System.out.printf("%.2f",monthlydebt);
            System.out.println();

            double moneyleft = currentmoney - monthlydebt;
            System.out.println("Your money left is RM:");
            System.out.printf("%.2f",moneyleft);
            System.out.println();
}



    public static void printgiftshop() {
        Scanner scanMe = new Scanner (System.in);

    System.out.println();
    System.out.println();
    System.out.println("Welcome Gift Shop:");
    System.out.println("_____");
    System.out.println("|ITEM                |ITEM CODE  |");
    System.out.println("|____________________|___________|");
    System.out.println("|* Samsung Smartphone |    1      |");
    System.out.println("|* Trip to Langkawi   |    2      |");
    System.out.println("|*GCS Ticket Movie    |    3      |");
    System.out.println("|*PS4                 |    4      |");
    System.out.println("|*ASUS Laptop         |    5      |");
```

```
        System.out.println("|_____|_____|");

        int t = 3;
        int u = 0;
        System.out.println();
        System.out.println("You have 30 points in your credit card");
        System.out.println();
        System.out.println("You can choose 3 Item in Gift Shop, due to purchase made this month");

        while(t > 0) {
            System.out.println("Choose item that you interest in the point shop:");
            u = scanMe.nextInt();

            if(u == 1) {
                System.out.println("you choose Samsung Smartphone");
                t--;
            }
            else if(u==2) {
                System.out.println("you choose Trip to Langkawi");
                t--;
            }
            else if(u==3){
                System.out.println("you choose CGS Ticket Movie");
                t--;
            }
            else if(u==4){
                System.out.println("you choose PS4");
                t--;
            }
            else if(u==5){
                System.out.println("you choose ASUS Laptop");
                t--;
            }
            else {
               System.out.println("the item didn't have in this shop");
            }
            System.out.println("You have" +" "+ t + " " + "left to choose your gift");
```

```

        }
        System.out.println("We hope you like the gift");
        System.out.println();

            }




        public static void printCreditCardcalculator() {
            Scanner scanMe = new Scanner (System.in);
        System.out.println("Welcome to payment calculator");
        System.out.println("This programm will calculate how much money you use to pay up credit card debt in a month");
        System.out.println();



        System.out.print("select how many probability you want to see: ");
        int probability = scanMe.nextInt();
        System.out.println();
        System.out.println("_____");

        for(int ii=1; ii <= probability; ii++ ) {
            System.out.println("The "+ ii + " calculation" );
            System.out.print("how much you invest for this credit card: ");
            double investment = scanMe.nextDouble();
            System.out.print("Anual interst rate for this credit card: ");
            double rate = scanMe.nextDouble();
            System.out.println("Enter your payment for this month:");
            double payment = scanMe.nextDouble();
            System.out.println();
            double percentageInterest = (investment * rate)/(12);
            double interest = (percentageInterest / 100);
            System.out.println("interst: " + interest);
            double PaidAmount = interest + investment;
```

```
            System.out.println("Paid ammount: " + PaidAmount);
            double balance = PaidAmount - payment;
            System.out.println("Balance of debt left: " + balance);
            System.out.println("_____");

            System.out.println();

        };
    }
}
```

3.5 Housing loan

```
package Assingment3;

import java.util.Scanner;

public class housingLoan3 {

    static Scanner sc = new Scanner (System.in);

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        System.out.println("------------------------------------ \n");
        System.out.println("\n WELCOM TO GEMPAK BANK\n");
        System.out.println("------------------------------------ \n");

        int menu;

        do {

             System.out.println("\nMENU");
             System.out.println("\n1. REGISTER ");
             System.out.println("\n2. LOAN CALCULATOR ");
             System.out.println("\n3. TYPE HOUSE ");
             System.out.println("\n4. E-STATEMENT ");
             System.out.println("\n5. EXIT ");
             System.out.print("\nSELECT CHOOSE: ");
             menu = sc.nextInt();
```

```
             int i;

             int formatter = 0;

             switch (menu)

             {

             case 1:

                 String [] housingloan=null ;

                 Register (housingloan);

                 break;

             case 2:

                 Object loancalculator=null;

                 calculator(loancalculator);

                 break;

             case 3:

                 String[] housetype = null;

                 House(housetype);
                  break;

              case 4:

                  futurehousevalue();

                  break;

              case 5:

                  String exit =null;

                  exitSystem();

                  break;


             }

         }while (menu != 5);

    }

    static void Register(String[] housingloan) {


        Scanner scan = new Scanner (System.in);

        String [] name = new String[15];
```

```
92
93          int [] phone_number = new int[10];
94
95          String [] acc_number = new String[15];
96
97          int a = 1;
98
99
100         System.out.print(" \nPLEASE ENTER YOUR NAME: ");
101
102         name [a]= scan.next();
103
104         scan.nextLine();
105
106         System.out.print(" \nPLEASE ENTER YOUR PHONE NUMBER : ");
107
108         phone_number[a] =scan.nextInt();
109
110
111         System.out.print(" \nPLEASE ENTER YOUR ACCOUNT NUMBER: ");
112
113         acc_number [a]= scan.next();
114
115
116     }
117
118     static void calculator (Object loancalculator){
119
120         System.out.println("\nENTER YOUR NAME : ");
121
122         String name = sc.next();
```

```
124         System.out.println("\nENTER THE LOAN AMOUNT : ");
125
126         double loan =sc.nextDouble();
127
128         System.out.println("\nENTER THE INTERST RATE : ");
129
130         double interest = sc.nextDouble();
131
132         double monthlyinterest = interest /(12*100);
133
134         System.out.println("\nENTER THE NUMBER OF YEARS : ");
135
136         double time = sc.nextDouble();
137
138         double years = time * 12;
139
140         double monthlypayment= (loan*monthlyinterest*Math.pow(1+monthlyinterest,years))/(Math.pow(1+monthlyinterest,years)-1);
141
142         double totalpayment = monthlypayment * years;
143
144
145         System.out.println("\n*---YOUR TOTAL MONTHLY PAYMENT AND TOTAL PAYMENT---*");
146
147         System.out.println("\nTHE TOTAL MONTHLY PAYMENT IS RM "+ (Math.round(monthlypayment)));
148
149         System.out.println("\nTHE TOTAL PAYMENT IS RM " + (Math.round(totalpayment)));
150
151         System.out.println("\n*THANK YOU FOR USING MAYBANK CALCULATOR *");
152
153     }
```

```
155
156     static void House (String [] housetype) {
157
158
159         String home="";
160
161         int loan;
162
163         float pay;
164
165
166
167         System.out.print("\nPLEASE ENTER YOUR BUDGET PRICE :");
168
169         loan=(int)sc.nextDouble();
170
171
172
173         if(loan>=100000 && loan<=200000){
174             home="1";
175             pay=130000/200;
176             System.out.println("PACKAGE HOME 1 ");
177             System.out.println("APARTMENT");
178             System.out.println("PRICE RM 130000 ");
179             System.out.println("HOUSE LOAN 30 YEARS");
180
181
182         }
183
184
```

```
        else if (loan>=200000 && loan<=300000){

             home="2";
                pay=270000/200;
                System.out.println("PACKAGE HOME 2");
                System.out.println("SINGLE STOREY ");
                System.out.println("PRICE RM 270000 ");
                System.out.println("HOUSE LOAN 30 YEARS ");


        }


        else if (loan>=300000 && loan<=400000) {

             home="3";
              pay=320000/200;
              System.out.println("PACKAGE HOME 3");
              System.out.println("DOUBLE STOREY ");
              System.out.println("PRICE RM 320000 ");
              System.out.println("HOUSE LOAN 30 YEARS ");


        }


        else if (loan>=400000 && loan<=600000) {

             home="4";
              pay=550000/200;
              System.out.println("PACKAGE HOME 4");
              System.out.println("SEMI D DOUBLE STOREY ");
              System.out.println("PRICE RM 550000 ");
              System.out.println("HOUSE LOAN 30 YEARS ");
        }


        else if (loan>=600000 && loan<=1000000) {

             home="5";
              pay=1000000/200;
              System.out.println("PACKAGE HOME 5");
              System.out.println("BUNGLOW");
              System.out.println("PRICE RM 1000000 ");
              System.out.println("HOUSE LOAN 30 YEARS ");

        }

        System.out.print("\n***");

        System.out.print("\nPLEASE ENTER PACKAGE NUMBER IF YOU INTERESETED : ");

        home=sc.next();

        home.toUpperCase();

        if(home.equalsIgnoreCase(home)){

            switch(home){


            case "1":

                pay=(130000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;


            case "2":

                pay=(270000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;


            case "3":

                pay=(320000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;


            case "4":

                pay=(550000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;
```

```
            case "5":

                pay=(1000000/200);

                System.out.println("\nPAKEJ "+home);
                System.out.printf("\nYOUR MONTHLY PAYMENT WILL BE :RM %.2f%n",pay);

                break;

            }

        }

    }


    static void futurehousevalue(){


        System.out.println("\nENTER THE LOAN AMOUNT : ");


        double loan =sc.nextDouble();


        System.out.println("\nENTER THE INTERST RATE : ");

        double interest = sc.nextDouble();

        double monthlyinterest = interest /(12*100);

       System.out.println("\nENTER THE NUMBER OF YEARS : ");

       double time = sc.nextDouble();

       double years = time * 12;


       for(int i = 0; i < time; i++) {


           double monthlypayment = (loan*monthlyinterest*Math.pow(1+monthlyinterest,years))/(Math.pow(1+monthlyinterest,years)-1);

           double totalpayment = monthlypayment * years;

           double yearlypayment = monthlypayment * 12;

           double allpayment = yearlypayment * ((i+1)*12);


           System.out.format("\n Year No "+ (i+1) +" : RM %.2f", allpayment);

           System.out.println("\n");



       }

    }

    static void exitSystem () {


        System.out.println("\n*********************************************");

        System.out.println("\nTHANK YOU FOR USING OUR SERVICE. SEE YOU AGAIN! ");

        System.out.println("\n*********************************************");


    }


}
```

3.6 Investment

```
Investment ▸ src ▸ assignment1 ▸ ProjectInvestment ▸
 1  package assignment1;
 2  import java.util.Calendar;
 5
 6  public class ProjectInvestment {
 7
 8      static Scanner scan = new Scanner(System.in);
 9      private static double a;
10      private static double b;
11      private static int c;
12      private static String[] x = new String[15];
13      private static int[] y = new int[10];
14      private static String[] z = new String[15];
15      private static int count=0;
16
17      public static void main(String[] args) {
18          // TODO Auto-generated method stub
19
20          System.out.println("------------------------------------ \n");
21          System.out.println("\n WELCOME TO GEMpak BANK  \n");
22          System.out.println("------------------------------------ \n");
23
24          System.out.println("\n");
25          System.out.println(" This are in the Invesment Section . ");
26          System.out.println("");
27
28          int invest_amount = 0, invest_tenure = 0;
29          int choose;
30          char pick;
31          double percent=0;
32
33          do
34          {
35                  System.out.println("Menu ");
36                  System.out.println("1. Register");
37                  System.out.println("2. Do Invest");
38                  System.out.println("3. Future Value");
39                  System.out.println("4. Get Receipt");
40                  System.out.println("5. Exit");
41                  System.out.print("Select choose : ");
42                  choose = scan.nextInt();
43
44
45                  int i;
46                  int formatter = 0;
47                  switch (choose)
48                  {
49                      case 1:
50                          String[] investor = null;
51                          Register(investor);
52                          break;
53                      case 2:
54                          Object investamount = null;
55                          invesmentAmount(investamount);
56                          break;
57                      case 3:
58                          futureInvestmentValue(a,b,c);
```

```
60                    case 4:
61                        printReceipt(x, y, z, a,b,c);
62                        break;
63                    case 5:
64                    String exit = null;
65                    exitSystem(exit);
66                        break;
67                }
68            } while (choose != 5);
69        }
70
71      static void Register(String[] investor) {
72
73            String [] name = new String[15];
74            int [] phone_number = new int[10];
75            String [] acc_number = new String[15];
76
77
78            System.out.print(" Please enter your name: ");
79            name [count]= scan.next();
80            scan.nextLine();
81            System.out.print(" Please enter your phone number: ");
82            phone_number[count] =scan.nextInt();
83            System.out.print(" Please enter your account number: ");
84            acc_number [count]= scan.next();
85
86            x[count] = name [count];
87            y[count] = phone_number[count];
88            z[count] = acc_number [count];
89            count++;
90        }
91      static void invesmentAmount(Object investamount) {
92
93            int invest_amount, invest_tenure;
94            double percent, profitpayabletocust, accumulatedprofit, totalamount;
95
96            do {
97            System.out.println(" Enter your Investment amount : ");
98            invest_amount = scan.nextInt();
99
100           percent = 0;
101           if((invest_amount >= 1000)&&(invest_amount <= 10000)) {
102               percent = 3.2;
103           } else if ((invest_amount >= 10001)&&(invest_amount <= 30000)) {
104               percent = 3.8;
105           } else if ((invest_amount>= 30001)&& (invest_amount <= 50000)) {
106               percent = 4.2;
107           }else {
108               System.out.println("PLEASE PUT AMOUNT BETWEEN RM1000 TO RM50000 !");
109           }
110           }
111           while((invest_amount < 1000)||(invest_amount>50000));
112
113           int f=1;
114           do {
115           System.out.println("PLEASE PUT 3 OR 6 OR 12 ONLY!");
```

```
            System.out.println(" Enter Investment tenure : ");
            invest_tenure = scan.nextInt();

            if (invest_tenure == 3){
                System.out.println("Calculation in Progress.");
                f=2;
            }else if (invest_tenure == 6){
                System.out.println("Calculation in Progress.");
                f=2;
            }else if (invest_tenure == 12){
                 System.out.println("Calculation in Progress.");
                 f=2;
            }else {
                System.out.println("Please Follow Instruction !");
            }
            }
            while (f==1);


            profitpayabletocust = invest_amount * percent/100 * 30/365;
            accumulatedprofit = profitpayabletocust * invest_tenure ;
            totalamount = invest_amount + accumulatedprofit ;

            System.out.println("");
            System.out.println("Calculation Done !");
            System.out.println("");
            System.out.format(" Profit Payable to Customer : RM %.2f", profitpayabletocust);
            System.out.println("\n");
            System.out.format(" Accumulated Profit : RM %.2f", accumulatedprofit);
            System.out.println("\n");
            System.out.format(" Total Amount : RM %.2f", totalamount);
            System.out.println("\n");

            a = invest_amount;
            b = percent;
            c = invest_tenure;
    }

    static void futureInvestmentValue(double invest_amount, double percent, int invest_tenure) {

       double  profitpayabletocust, accumulatedprofit, totalamount;

       System.out.println("\t Month       Future Value");
       for(int i = 0; i < invest_tenure; i++) {

            profitpayabletocust = invest_amount * percent/100 * 30/365;
            accumulatedprofit = profitpayabletocust * (i+1) ;
            totalamount = invest_amount + accumulatedprofit ;

            System.out.format("\t Month No "+ (i+1) +" : RM %.2f", totalamount);
            System.out.println("\n");
       }
    }



    static void printReceipt(String name[], int phone_number[], String acc_number[], double invest_amount, double percent, int invest_tenure ) {

        double  profitpayabletocust, accumulatedprofit, totalamount;

       System.out.println("_____________________________________________");
       System.out.println("\n\t         GEMpak BANK E-Receipt");

            System.out.println(" \tName \tPhone Number \tAccount Number  \n");
           for(int i = 0; i < count; i++)
           {
               System.out.println( "\t" + name[i] + "\t" + "0"+phone_number[i] + "\t" + acc_number[i] + "\t" );
           }

           int noOfDays = 0;
           if(invest_tenure == 3) {
               noOfDays = 90;
           } else if (invest_tenure == 6) {
               noOfDays = 180;
           } else if(invest_tenure == 12) {
               noOfDays = 365;
           }
            Calendar cal = Calendar.getInstance();
            Date cdate = cal.getTime();
            cal.add(Calendar.DAY_OF_YEAR, noOfDays);
            Date date = cal.getTime();

           System.out.println("\n\tRegistration Date : "+ cdate);
           System.out.println("\n\tMaturity Date : "+ date);


           profitpayabletocust = invest_amount * percent/100 * 30/365;
           accumulatedprofit = profitpayabletocust * invest_tenure ;
           totalamount = invest_amount + accumulatedprofit ;

           System.out.println("");
           System.out.format("\tProfit Payable to Customer : RM %.2f", profitpayabletocust);
           System.out.println("\n");
           System.out.format("\tAccumulated Profit : RM %.2f", accumulatedprofit);
           System.out.println("\n");
           System.out.format("\tTotal Amount : RM %.2f", totalamount);
           System.out.println("\n");

           a = invest_amount;
           b = percent;
           c = invest_tenure;

           futureInvestmentValue(a,b,c);

           System.out.println("*This is computer generated receipt, no signature required. ");
           System.out.println("_____________________________________________");

    }
    static void exitSystem(String exit) {
       System.out.println("------------------------------------------------ \n");
       System.out.println(" \t THANK YOU FOR USING OUR SERVICE.  \n");
       System.out.println("------------------------------------------------ \n");
    }

}
```

4.0 Sample Run

4.1 Main menu

```
******####### WELCOME TO GEMpak BANK #######*******
MAIN MENU
1. BUSINESS LOAN
2. PERSONAL ACCOUNT
3. CREDIT CARD
4. HOUSING LOAN
5. INVESTMENT
******########################################*******
Please choose your service :
```

4.2 Business loan

```
MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
1
------------------------------------------------------------
This is information about Loan
------------------------------------------------------------
Eligibility:
-Below RM25 million annual sales turnover
-Below RM5 million outstanding loan/financing with GEMpak
-Malaysian-owned registered company
-More than 1 year in operation
------------------------------------------------------------

Enter 00 to back to main menu :
00

MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
2
There are 2 types of application method:
1.  By online application
2.  By branch application
```

```
There are 2 types of application method:
1.  By online application
2.  By branch application

Enter 00 to back to main menu :
00

MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
3
Not sure which application method suits you better? Here are the key differences to help you decide:

1.  Online Application
    a) Financing amount: RM10,000 - RM250,000
    b) Financing tenure: Up to 5 years
    c) Business operation period: Minimum 1 year

2.  Branch Application
    a) Financing amount: RM50,001- RM1,500,000
    b) Financing tenure: Up to 7 years
    c) Business operation period: Minimum 3 year

Enter 00 to back to main menu :
```

```
MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
4
The interest rate is 4.5%

Enter 00 to back to main menu :
00

MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
5
Enter your name:
aisyah
Enter your number phone:
01156533696
Enter your account number:
01236547895036
Enter business operation period (in months):
48
Enter your annual revenue:
200000

Enter the amount of loan:
150000
Enter financing tenure:
7

Enter 1 to proceed to monthly payment calculation
1
Monthly payment is RM 2085.02
Total payment is RM 175142.03
RECORD HAS BEEN ADDED SUCCESSFULLY!!

-----------------------------------------
DO YOU WANT TO ADD ANOTHER INPUT (Y/N):
y
-----------------------------------------
Enter your name:
akim
Enter your number phone:
0145879632
Enter your account number:
98560214730569
Enter business operation period (in months):
36
Enter your annual revenue:
50000
Enter the amount of loan:
70000
Enter financing tenure:
7

Enter 1 to proceed to monthly payment calculation
1
Monthly payment is RM 973.01
Total payment is RM 81732.95
RECORD HAS BEEN ADDED SUCCESSFULLY!!
```

```
-----------------------------------------
DO YOU WANT TO ADD ANOTHER INPUT (Y/N):
n
-----------------------------------------
Enter 00 to back to main menu :
00

MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
6
-------------------------------------------------------------------------------------------------------------------
Name                Phone               Account Number      Loan amount (RM)    Monthly payment(RM) Total payment(RM)
-------------------------------------------------------------------------------------------------------------------
aisyah              01156533696         01236547895036      150000              2085.02             175142.03
akim                0145879632          98560214730569      70000               973.01              81732.95
-------------------------------------------------------------------------------------------------------------------

Enter 00 to back to main menu :
00

MAIN MENU
1. Information of Loan
2. Type of application method
3. Information about application method
4. The interest rate
5. Input information
6. View Record
7. Exit
PLEASE CHOOSE ONE OF THE ABOVE OPTIONS:
7
If you have any problem about business loan, you can contact our customer service:
-------------------------------------
 1    Zakri          011 7789 5464
-------------------------------------
 2    Ahmad          011 8942 1215
-------------------------------------
 3    Siti           019 6539 844
-------------------------------------

Or you can email or you can go to our website

Email : bankGEMbusinessLoan@gmail.com
Website : bankgembusinessloan.com.my
```

4.3 Personal account

```
_____________________________________________________________________________
############## WELCOME TO GEMpak BANK ##############
#  1.   Register New User                          #
#  2.   DuitNow                                    #
#  3.   Exit                                       #
###################################################
CHOOSE ONE OF THE OPTION ABOVE : 1

XXXXXXXXXXXXXXXXXX NEW USER XXXXXXXXXXXXXXXXXXXX

______PLEASE INSERT THE INFORMATION DETAILS______

 Full Name : NADHIR BIN NASAR
 Account Number: 735628
 Number Phone: 0138299326

--------THANK YOU FOR REGISTERING WITH US !---------
--------NOW YOU ARE MEMBER OF GEMpak BANK !---------
_____________________________________________________________________________
############## WELCOME TO GEMpak BANK ##############
#  1.   Register New User                          #
#  2.   DuitNow                                    #
#  3.   Exit                                       #
###################################################
CHOOSE ONE OF THE OPTION ABOVE : 2

XXXXXXXXXXXXXXXXXX DuitNow XXXXXXXXXXXXXXXXXXXX

Your Account Number : 735628


______PLEASE INSERT THE INFORMATION DETAILS______
Recipient Bank Name : MAYBANK
Recipient Account : 825581
Recipient Name : MEER BIN QEEN HAIDAR
Recipient Reference : WINNER MASTER CHEF
Amount : RM 200
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^  *Fee : 2%                                                                 ^
^  *Please take note that RM1.00 will be charged for every transaction ^
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
CHOOSE 1 TO CONTINUE !
1
Total that have been charged : RM 205.00


-----------------------------------------------------
          **TRANSACTION SUCCESSFULL**
-----------------------------------------------------
```

```
DO YOU WANT TO ADD ANOTHER TRANSACTION? (Y/N) : Y
Your Account Number : 735628

______PLEASE INSERT THE INFORMATION DETAILS______
Recipient Bank Name : BANK RAKYAT
Recipient Account : 7245182
Recipient Name : ARMIEN BIN SYAKIRIN
Recipient Reference : FOR FUN
Amount : RM 300
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^  *Fee : 2%                                                                    ^
^  *Please take note that RM1.00 will be charged for every transaction ^
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
CHOOSE 1 TO CONTINUE !
1
Total that have been charged : RM 307.00


-----------------------------------------------------
          **TRANSACTION SUCCESSFULL**
-----------------------------------------------------

DO YOU WANT TO ADD ANOTHER TRANSACTION? (Y/N) : N
```

```
############## WELCOME TO GEMpak BANK ##############
#  1.   Register New User                           #
#  2.   DuitNow                                     #
#  3.   Exit                                        #
####################################################
CHOOSE ONE OF THE OPTION ABOVE : 3
-------------------------------------------------
       THANK YOU FOR USING GEMpak BANK
-------------------------------------------------
```

```
##    ##     ##    #########  #########  ##        ##      ######## ######### ######## #########    ### ###
##    ##   ##  ##  ##     ##  ##     ##  ###      ##      ######## ######### ######## #########    ### ###
########  ##    ## ##     ##  ##     ##   ###   ###           ## ##     ##       ##        ##        ### ###
######## ######### #########  #########     #####          ######## ##     ## ######## #########    ### ###
##    ## ##     ## ##         ##              ##            ##       ##     ## ##       ##           ### ###
##    ## ##     ## ##         ##              ##            ######## ######### ######## #########
##    ## ##     ## ##         ##              ##            ######## ######### ######## #########    ### ###
```

```
                    TO OUR BELOVED GEMpak BANK USER <3
                 We are going to send you some present to you <3

                          LETS PLAY A GUESS NUMBER GAME FIRST !!

                 You Will Be Asked To Guess A Number Before Proceed to your gifts
                                  You can attempt 5 times
```

```
A number is chosen between 1 to 100.
Guess the number:
40
The number is less than 40
Guess the number:
29
The number is less than 29
Guess the number:
19
The number is less than 19
Guess the number:
5
The number is less than 5
Guess the number:
2
You have exceeded the maximum attempts.
The number is 3
```

```
                                PLEASE CHOOSE YOUR GIFTS<3

1.Notebook + Calender

2.Bag + Calender

3.Tumblr Bottle + Calender

4.We Bare Bear + Calender

5.Colour Pencil + Calender

Insert the NUMBER : 4

You choose We Bare Bear and 2022 Calender as a gift.

      PLEASE BE NOTED THAT YOUR GIFT WILL ARRIVED TO YOUR HOUSE WITHIN 2 WEEKS.
########################## THANK YOU FOR USING GEMpak BANK ##########################
```

4.4 Credit card

```
*****Welcome to GEMpak Bank Credit Card*****
MAIN MENU:

1.payment using credit card
2.Gift shop
3.Credit Card Calculator
4.Exit

********************************************************************************

choose what you want to do:
1
You choose credit card payment
Welcome to credit card payment
This month is June
purchase for smartphone and laptop made in 10/6/2021:

how much ammount for smartphone:
4000
whats ammount for laptop:
5000

purchase for petrol,air plane ticket, insurance and house debt made in 20/6/2021:

how much ammount for petrol:
50
how much ammount for air plane ticket:
300
how much ammount for insurance:
45
how much ammount for house debt:
75

purchase for car devt and hotel booking made in 30/6/2021:

how much ammount for car debt:
353


how much ammount for hotel booking:
85
Purchase to be made in June using Credit Card:
_____________________________________
|DATE       |ITEM                  |PRICE    |
|___________|______________________|_________|
| 10/6/2021 |* SMARTPHONE          |RM4000.0 |
|           |* LAPTOP              |RM5000.0 |
|___________|______________________|_________|
| 20/6/2021 |*PETROL               |RM50.0   |
|           |*AIRPLANE TICKET      |RM300.0  |
|           |*INSURANCE            |RM45.0   |
|           |*HOUSE DEBT           |RM75.0   |
|___________|______________________|_________|
| 30/6/2021 |*CAR DEBT             |RM353.0  |
|           |*HOTEL BOOKING        |RM85.0   |
|___________|______________________|_________|
_____________________________________________________________________________
|TYPE |TYPE                                 | CREDIT CARD NUMBER| EXPARITION DATE| CCV|
|_____|_____________________________________|___________________|________________|____|
|  1  |GEMpak e Credit Card                 |1111-2222-3333-4444|      21/27     | 445|
|_____|_____________________________________|___________________|________________|____|
|  2  |GEMpak Petronas Platinum MasterCard  |2324-5957-9128-5387|      09/28     | 499|
|_____|_____________________________________|___________________|________________|____|
|  3  |GEMpak Platinum Explore Credit Card-i|7979-6124-6996-9000|      01/25     | 321|
|_____|_____________________________________|___________________|________________|____|
Choose what credit type you want to use:
3
You choose GEMpak Platinum Explore Credit Card-i
Your balance for this credit card is65000.0
You have 5% cashback for this credit card
Your limit for Bank Rakyat Platinum Explore Credit Card-i is:55092.0
Your Cashback is:RM19.25
Total debt to be pay per monthly is RM:825.6666666666666
Your unpaid Debt for this credit card is RM1000

Whats you current money:
5000
```

```
The annual interest rate for 3 credit card is 15%
your charge payment for this month is RM:
825.67
Your money left is RM:
4174.33
*****Welcome to GEMpak Bank Credit Card*****
MAIN MENU:

1.payment using credit card
2.Gift shop
3.Credit Card Calculator
4.Exit

********************************************************************************

choose what you want to do:
2
You choose gift shop


Welcome Gift Shop:
_____________________________
|ITEM                  |ITEM CODE  |
|______________________|___________|
|* Samsung Smartphone  |    1      |
|* Trip to Langkawi    |    2      |
|*GCS Ticket Movie     |    3      |
|*PS4                  |    4      |
|*ASUS Laptop          |    5      |
|______________________|___________|

You have 30 points in your credit card

You can choose 3 Item in Gift Shop, due to purchase made this month
Choose item that you interest in the point shop:
2
you choose Trip to Langkawi


You have 2 left to choose your gift
Choose item that you interest in the point shop:
3
you choose CGS Ticket Movie
You have 1 left to choose your gift
Choose item that you interest in the point shop:
6
the item didn't have in this shop
You have 1 left to choose your gift
Choose item that you interest in the point shop:
5
you choose ASUS Laptop
You have 0 left to choose your gift
We hope you like the gift

*****Welcome to GEMpak Bank Credit Card*****
MAIN MENU:

1.payment using credit card
2.Gift shop
3.Credit Card Calculator
4.Exit

********************************************************************************

choose what you want to do:
3
You choose credit card calculator
Welcome to payment calculator
This programm will calculate how much money you use to pay up credit card debt in a month

select how many probability you want to see: 3

_____________________________________________________________
The 1 calculation
how much you invest for this credit card: 2000
Anual interst rate for this credit card: 12
```

```
Enter your payment for this month:
250

interst: 20.0
Paid ammount: 2020.0
Balance of debt left: 1770.0
--------------------------------------------------------------------------------

The 2 calculation
how much you invest for this credit card: 5000
Anual interst rate for this credit card: 15
Enter your payment for this month:
500

interst: 62.5
Paid ammount: 5062.5
Balance of debt left: 4562.5
--------------------------------------------------------------------------------

The 3 calculation
how much you invest for this credit card: 7500
Anual interst rate for this credit card: 22
Enter your payment for this month:
990

interst: 137.5
Paid ammount: 7637.5
Balance of debt left: 6647.5
--------------------------------------------------------------------------------

*****Welcome to GEMpak Bank Credit Card*****
MAIN MENU:

1.payment using credit card
2.Gift shop
3.Credit Card Calculator
4.Exit


********************************************************************************

choose what you want to do:
6
*****Welcome to GEMpak Bank Credit Card*****
MAIN MENU:

1.payment using credit card
2.Gift shop
3.Credit Card Calculator
4.Exit

********************************************************************************

choose what you want to do:
4
thank you for using our program
```

4.5 Housing loan

```
-------------------------------------

 WELCOM TO GEMpak BANK

-------------------------------------

MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 1

PLEASE ENTER YOUR NAME: MUHAMMAD YASRI BIN ROSLAN

PLEASE ENTER YOUR PHONE NUMBER : 0112563256

PLEASE ENTER YOUR ACCOUNT NUMBER: 26356362545


MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 2

ENTER YOUR NAME :
YASRI

ENTER THE LOAN AMOUNT :
249000

ENTER THE INTERST RATE :
3.80

ENTER THE NUMBER OF YEARS :
30

*---YOUR TOTAL MONTHLY PAYMENT AND TOTAL PAYMENT---*

THE TOTAL MONTHLY PAYMENT IS RM 1160

THE TOTAL PAYMENT IS RM 417684


MENU

1. REGISTER

2. LOAN CALCULATOR

3. TYPE HOUSE

4. E-STATEMENT

5. EXIT

SELECT CHOOSE: 3

PLEASE ENTER YOUR BUDGET PRICE :300000
PACKAGE HOME 2
SINGLE STOREY
PRICE RM 270000
HOUSE LOAN 30 YEARS

***
PLEASE ENTER PACKAGE NUMBER IF YOU INTERESETED : 2

PAKEJ 2

YOUR MONTHLY PAYMENT WILL BE :RM 1350.00
```

```
MENU
1. REGISTER
2. LOAN CALCULATOR
3. TYPE HOUSE
4. E-STATEMENT
5. EXIT
SELECT CHOOSE: 4
ENTER THE LOAN AMOUNT :
300000
ENTER THE INTERST RATE :
3.80
ENTER THE NUMBER OF YEARS :
30
 Year No 1 : RM 201293.58
 Year No 2 : RM 402587.15
 Year No 3 : RM 603880.73
 Year No 4 : RM 805174.30
 Year No 5 : RM 1006467.88
 Year No 6 : RM 1207761.45
 Year No 7 : RM 1409055.03
 Year No 8 : RM 1610348.61
 Year No 9 : RM 1811642.18
 Year No 10 : RM 2012935.76
 Year No 11 : RM 2214229.33
 Year No 12 : RM 2415522.91
 Year No 13 : RM 2616816.48
 Year No 14 : RM 2818110.06
 Year No 15 : RM 3019403.63
 Year No 16 : RM 3220697.21
 Year No 17 : RM 3421990.79
 Year No 18 : RM 3623284.36
 Year No 19 : RM 3824577.94
 Year No 20 : RM 4025871.51
 Year No 21 : RM 4227165.09
 Year No 22 : RM 4428458.66
 Year No 23 : RM 4629752.24
 Year No 24 : RM 4831045.82
 Year No 25 : RM 5032339.39
 Year No 26 : RM 5233632.97
 Year No 27 : RM 5434926.54
 Year No 28 : RM 5636220.12
 Year No 29 : RM 5837513.69
 Year No 30 : RM 6038807.27
```

```
MENU
1. REGISTER
2. LOAN CALCULATOR
3. TYPE HOUSE
4. E-STATEMENT
5. EXIT
SELECT CHOOSE: 5
************************************************
THANK YOU FOR USING OUR SERVICE. SEE YOU AGAIN!
************************************************
```

4.6 Investment

```
--------------------------------------


 WELCOME TO GEMpak BANK

--------------------------------------


 This are in the Invesment Section .

Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 1
 Please enter your name: Syakir Aiman Bin Nordin
 Please enter your phone number: 01136660272
 Please enter your account number: 151546987
Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 2
 Enter your Investment amount :
47500
PLEASE PUT 3 OR 6 OR 12 ONLY!
 Enter Investment tenure :
6
Calculation in Progress.

Calculation Done !

 Profit Payable to Customer : RM 163.97

 Accumulated Profit : RM 983.84

 Total Amount : RM 48483.84

Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 3
          Month        Future Value
          Month No 1 : RM 47663.97

          Month No 2 : RM 47827.95

          Month No 3 : RM 47991.92
```

```
          Month No 4 : RM 48155.89

          Month No 5 : RM 48319.86

          Month No 6 : RM 48483.84

Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 4
_____________________________________________

                GEMpak BANK E-Receipt
        Name    Phone Number    Account Number

        Syakir  01136660272     151546987

        Registration Date : Sat Feb 05 13:40:30 MYT 2022

        Maturity Date : Thu Aug 04 13:40:30 MYT 2022

        Profit Payable to Customer : RM 163.97

        Accumulated Profit : RM 983.84

        Total Amount : RM 48483.84

         Month       Future Value
         Month No 1 : RM 47663.97

         Month No 2 : RM 47827.95

         Month No 3 : RM 47991.92

         Month No 4 : RM 48155.89

         Month No 5 : RM 48319.86

         Month No 6 : RM 48483.84

*This is computer generated receipt, no signature required.
_____________________________________________
Menu
1. Register
2. Do Invest
3. Future Value
4. Get Receipt
5. Exit
Select choose : 5
-------------------------------------------------

         THANK YOU FOR USING OUR SERVICE.
```