MINI PROJECT BCL1023: PROGRAMMING TECHNIQUE

DOMAIN: FINANCIAL

TITLE: GEMINI WEALTH MANAGEMENT

(" INVEST IN YOUR TOMORROW: SAVE TODAY! ")

PREPARED FOR: TS. DR. YUSNITA BINTI MUHAMAD NOOR

Matric ID	Name	Section
SD22003	NUR ATIEKA RAFIEKAH BINTI RAZAK	01G
SD22032	NUR A'RIFAH AKMAL BINTI HUSSIN	01G
SD22037	NUR NABILA BINTI ABD RAHMAN	02G
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TABLE OF CONTENTS

1. BACKGROUND STUDY

Gemini Wealth Management understands that every client has unique financial goals. The company provides investment advisory services to help clients achieve their financial objectives. In this case study, we will explore how the company helped a client at Gemini Wealth Management save for medical, education, and loan expenses based on their salary level. Gemini Wealth Management system empowers clients to take charge of their financial savings. By considering income levels, employment types, dependents, and specific goals such as medical expenses, education, and loan repayments, they deliver personalized solutions that help clients achieve their long-term financial objectives. Through ongoing support and regular reviews, Gemini Wealth Management ensures clients can adapt their savings plans as their financial circumstances evolve. Gemini Wealth Management works towards securing a brighter and more prosperous future.

Additionally, Gemini Wealth Management has a system that goes beyond providing savings recommendations. They understand that investment choices play a crucial role in wealth accumulation. Therefore, their system recommends suitable investment vehicles based on the client's risk profile, financial goals, and time horizon. The Gemini Wealth Management team assists clients with optimizing their savings and guiding their investment decisions to maximize their financial resources and work towards their long-term economic goals. As the company has grown, it requires assistance with its systems process for calculating the total financial savings for each client by category since more clients know that wealth management helps diversify their financial goals and achieve security.

The company has decided to solve this issue by implementing a computer program that automatically calculates the total financial savings based on income, employment types, dependents, and specific goals such as medical expenses, education, and loan repayments.

a) Client Profile

Income Level	Employment Category	Financial Plan	Saving Rate %
< RM 5,000	Government Sector	Medical Expenses	1
		Education	2
		Loan Repayments	5
	Private Sector	Medical Expenses	3
		Education	3
		Loan Repayments	7
	Self-Employment	Medical Expenses	5
		Education	8
		Loan Repayments	10
< RM 10,000	Government Sector	Medical Expenses	7
		Education	8
		Loan Repayments	13
	Private Sector	Medical Expenses	10
		Education	12
		Loan Repayments	15
	Self-Employment	Medical Expenses	20
		Education	15
		Loan Repayments	17
> = RM 10,000	Government Sector	Medical Expenses	13
		Education	15
		Loan Repayments	18
	Private Sector	Medical Expenses	17
		Education	13
		Loan Repayments	18
	Self-Employment	Medical Expenses	18
		Education	15
		Loan Repayments	20

Table 1.1: *Client Profile*

b) Client Dependant

Total Dependant	Saving rates discount	
< 3	Medical Expenses	2
	Education	2
	Loan Repayments	1
< 6	Medical Expenses	4
	Education	4
	Loan Repayments	2
>= 6	Medical Expenses	6
	Education	6
	Loan Repayments	4

Table 1.2: *Client Dependant*

c) Client Service Charge

Income Level	Charge Services Rate(%)
< RM 5,000	**3**
< RM 10,000	**8**
> = RM 10,000	**12**

Table 1.3: *Client Interest Charge*

2. OBJECTIVES

The objectives of this project are as follow:

i. To provide personalized investment advisory services

ii. To help and assist clients in saving for specific expenses such as medical, education, and loan repayments based on their salary level and financial circumstances.

iii. To empower clients to take charge of their financial savings by considering income levels, employment types, dependents, and specific goals.

iv. To maximize clients' financial resources and work towards their long-term economic goals.

v. To implement a computer program for automated calculations of total financial savings for each client by category, considering income, employment types, dependents, and specific goals.

vi. To secure a brighter and more prosperous future as our company strives to help clients by providing comprehensive wealth management solutions tailored to their unique financial situations and goals.

3. INPUT AND OUTPUT EXAMPLE

```
                            WELCOME TO GEMINI WEALTH MANAGEMENT!

                              ~*+ GEMINI WEALTH MANAGEMENT +*~
                            Invest in Your Tomorrow: Save Today!

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

                    Here is our charge service rate based on income level;

                                B40 |    < RM5000  |    3%
                                M40 |    < RM10000 |    8%
                                T20 |   >= RM10000 |    12%

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

Enter your Name: ATIEKA RAFIEKAH
Enter your Phone Number: 0139088981
Enter your Salary Income: RM 4700
Enter Employment Category [G: Government Sector, P: Private Sector, S: Self-Employment]: G
Enter your Total Dependant: 3
Enter how many Financial Plans you want: 2
You are included in income level of B40.
Enter Financial Plan [1. Medical Expenses, 2. Education, 3. Loan Repayments]: 1
Enter Financial Plan [1. Medical Expenses, 2. Education, 3. Loan Repayments]: 3


--------------------------- RECEIPT ----------------------------

Name: ATIEKA RAFIEKAH
Phone: 0139088981
Income: RM 4700.00
Employment Category: Government
Financial Plan: 2

    Financial Type      Saving          Saving After Discount
#1. Medical Expenses    RM 329.00       RM 315.84
#2. Loan Repayments     RM 611.00       RM 598.78

Total discount that you get [Based on the dependents]:  RM914.62
Total amount that you need to save:  RM940.00
Service charge You need to pay: RM141.00

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

Figure 1.1: *Input and Output Screenshot*

```
Another customer? [Y: Yes, N: No]: Y

Enter your Name: NABILA RAHMAN
Enter your Phone Number: 0199538299
Enter your Salary Income: RM 12000
Enter Employment Category [G: Government Sector, P: Private Sector, S: Self-Employment]: S
Enter your Total Dependant: 2
Enter how many Financial Plans you want: 3
You are included in income level of T20.
Enter Financial Plan [1. Medical Expenses, 2. Education, 3. Loan Repayments]: 1
Enter Financial Plan [1. Medical Expenses, 2. Education, 3. Loan Repayments]: 2
Enter Financial Plan [1. Medical Expenses, 2. Education, 3. Loan Repayments]: 3


--------------------------- RECEIPT ---------------------------

Name: NABILA RAHMAN
Phone: 0199538299
Income: RM 12000.00
Employment Category: Self-Employment
Financial Plan: 3

    Financial Type      Saving          Saving After Discount
#1. Medical Expenses    RM 2160.00      RM 2116.80
#2. Education           RM 1800.00      RM 1764.00
#3. Loan Repayments     RM 2400.00      RM 2376.00

Total discount that you get [Based on the dependents]:  RM6256.80
Total amount that you need to save:  RM6360.00
Service charge You need to pay: RM1440.00

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

Another customer? [Y: Yes, N: No]: N

************ Company Report ************
Total Customers: 2
Total Profit: 1581.00
**************************************

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

Figure 1.2: *Input and Output Screenshot*

4. CODES

```
#include <stdio.h>
#include <string.h>

void greeting();        // FILE
void intro();           // NABILA RAHMAN INTRODUCTION
void displayRate();     // 2D ARRAY
void input(char *name, char *phone, float *income, char
*employmentCategory, int *financialPlan, int *dependant);
// NABILA RAHMAN INPUT

void displayIncomeLevel(float income);
// ARIFAH DISPLAY INCOMETYPE@LEVL

void incomeLevel1(float income, char employmentCategory, int
financialPlan, float saving[], int financialType[]);
// ARIFAH INCOME LEVEL 1

void incomeLevel2(float income, char employmentCategory, int
financialPlan, float saving[], int financialType[]);
// NABILAH INCOME LEVEL 2

void incomeLevel3(float income, char employmentCategory, int
financialPlan, float saving[], int financialType[]);
// ATIEKA INCOME LEVEL 3

float calcdiscount(float income, int dependant, int *financialType,
float *saving, float *savingafterdiscount, int financialPlan);
// NABILA RAHMAN DISCOUNT DEPENDENT

float calcserviceRate(float income);      // ARIFAH SERVICE CHARGE
```

```
float calcSavings(int financialPlan, float saving[]);
// NABILAH TOTAL SAVING

void displayReceipt(int financialPlan, int *financialType, float
*saving, char employmentCategory, float income, char *name, char
*phone, float *savingafterdiscount, float discount, float
servicecharge, float totalSavings);
// ATIEKA DISPLAY RECIPT

char next();      // ATIEKA NEXT CUSTOMER

void displayReport(int totalCustomers, float Profit);
//  NABILAH DISPLAY REPORT

int main() // MAIN FUNCTION
{
    char name[50], phone[20], num[3][3][15], Title[100];
      char employmentCategory, anothercust;
    float saving[3], savingafterdiscount[3];
    int dependant, financialPlan, financialType[3];
    int numCustomers;
    int totalCustomers=0;
    float Profit, totalSavings, totalService,servicecharge, income,
discount ;
    greeting();
    intro();
    displayRate();
    do
    {
          input(name, phone, &income, &employmentCategory,
&financialPlan, &dependant);
      displayIncomeLevel(income);
```

```
            if (income >= 10000)
      {
          incomeLevel3 (income, employmentCategory, financialPlan,
saving, financialType);
      }
      else if (income < 10000)
      {
          incomeLevel2 (income, employmentCategory, financialPlan,
saving, financialType);
      }
      else
      {
          incomeLevel1 (income, employmentCategory, financialPlan,
saving, financialType);
      }
      discount = calcdiscount(income, dependant, financialType,
saving, savingafterdiscount, financialPlan);
      servicecharge = calcserviceRate(income);
      totalSavings = calcSavings(financialPlan, saving);
      displayReceipt(financialPlan, financialType, saving,
employmentCategory, income, name, phone, savingafterdiscount,
discount, servicecharge, totalSavings);

      printf("\n\n-------------------------------------------------
--------------\n");
      anothercust=next();
            totalCustomers++;       //COUNT CUSTOMER
            Profit+=servicecharge   ;     //COUNT PROFIT
      }
      while(anothercust=='Y' || anothercust=='y');
```

```
      displayReport(totalCustomers, Profit);


    return 0;
}
void greeting()         // FILE
{
    FILE *myFile;
    char Title[100];
    myFile = fopen("Title.txt", "w");
    fprintf(myFile, "\t\t\t      WELCOME TO GEMINI WEALTH
MANAGEMENT!");
    fclose(myFile);
    myFile = fopen("Title.txt", "r");
    fgets(Title, 100, myFile);
    puts(Title);
    fclose(myFile);
}

void intro()   // NABILA RAHMAN INTRODUCTION



{
    printf("\n\t\t\t        ~*+ GEMINI WEALTH MANAGEMENT +*~ \n");
    printf("\t\t\t      Invest in Your Tomorrow: Save Today! \n\n");
}

void displayRate()   // 2D ARRAY
{
    char num[3][3][15] = {  // [15] here is the size of string
        {" < RM5000", "3%"},
        {" < RM10000", "8%"},
        {">= RM10000", "12%"}
```

```
    };

    printf("\t\t-----------------------------------------------------
---------\n");
    printf("\n\t\t    Here is our charge service rate based on income
level;\n\n");
    printf(" \t\t\t\tB40 |\t%s  |  \t%s\n", num[0][0], num[0][1]);
    printf(" \t\t\t\tM40 |\t%s | \t%s\n", num[1][0], num[1][1]);
    printf(" \t\t\t\tT20 |\t%s | \t%s\n\n", num[2][0], num[2][1]);
    printf("\t\t-----------------------------------------------------
---------\n");
}
void input(char *name, char *phone, float *income, char
*employmentCategory, int *financialPlan, int *dependant)
 // NABILA RAHMAN INPUT
{
    float saving[3];
    int financialType[3], i;

      fflush(stdin);
    printf("\nEnter your Name: ");
    gets(name);
    fflush(stdin);

      fflush(stdin);
    printf("Enter your Phone Number: ");
    scanf("%s", phone);

    printf("Enter your Salary Income: RM ");
    scanf("%f", &*income);
```

```
    printf("Enter Employment Category [G: Government Sector, P:
Private Sector, S: Self-Employment]: ");
    scanf(" %c", &*employmentCategory);

    printf("Enter your Total Dependant: ");
    scanf("%d", &*dependant);

    printf("Enter how many Financial Plans you want: ");
    scanf("%d", &*financialPlan);
}
void displayIncomeLevel(float income)
//ARIFAH DISPLAY INCOME LEVEL TYPE
{
    if(income < 5000)
    {
        printf("You are included in income level of B40.\n");
    }
    else if(income < 10000)
    {
        printf("You are included in income level of M40.\n");
    }
    else
    {
        printf("You are included in income level of T20.\n");
    }
}
void incomeLevel1(float income, char employmentCategory, int
financialPlan, float saving[], int financialType[])
//ARIFAH INCOME LEVEL 1
{
    int i;
    for (i = 0; i < financialPlan; i++)
```

```
    {
        printf("Enter Financial Plan [1. Medical Expenses, 2.
Education, 3. Loan Repayments]: ");
        scanf("%d", &financialType[i]);

        if (employmentCategory=='G')
        {
            if (financialType[i] == 1)
            {
                saving[i] = 0.01 * income;
            }
            else if (financialType[i] == 2)
            {
                saving[i] = 0.02 * income;
            }
            else if (financialType[i] == 3)
            {
                saving[i] = 0.05 * income;
            }
        }
        else if(employmentCategory=='P')
        {
            if (financialType[i] == 1)
            {
                saving[i] = 0.03 * income;
            }
            else if (financialType[i] == 2)
            {
                saving[i] = 0.03 * income;
            }
            else if (financialType[i] == 3)
            {
```

```
                saving[i] = 0.07 * income;
            }
        }
        else
        {
            if (financialType[i] == 1)
            {
                saving[i] = 0.05 * income;
            }
            else if (financialType[i] == 2)
            {
                saving[i] = 0.08 * income;
            }
            else if (financialType[i] == 3)
            {
                saving[i] = 0.10 * income;
            }
        }
    }
}
void incomeLevel2(float income, char employmentCategory, int
financialPlan, float saving[], int financialType[]) {
//NABILAH INCOME LEVEL2
    int i;

    for (i = 0; i < financialPlan; i++)
    {
        printf("Enter Financial Plan [1. Medical Expenses, 2.
Education, 3. Loan Repayments]: ");
        scanf("%d", &financialType[i]);

        if(employmentCategory=='G')
```

```
{
    if (financialType[i] == 1)
    {
        saving[i] = 0.07* income;
    }
    else if (financialType[i] == 2)
    {
        saving[i] = 0.08 * income;
    }
    else if (financialType[i] == 3)
    {
        saving[i] = 0.13 * income;
    }
}
else if(employmentCategory=='P')
{
    if (financialType[i] == 1)
    {
        saving[i] = 0.10 * income;
    }
    else if (financialType[i] == 2)
    {
        saving[i] = 0.12 * income;
    }
    else if (financialType[i] == 3)
    {
        saving[i] = 0.15 * income;
    }
}
else
{
    if (financialType[i] == 1)
```

```
            {
                saving[i] = 0.20 * income;
            }
            else if (financialType[i] == 2)
            {
                saving[i] = 0.15 * income;
            }
            else if (financialType[i] == 3)
            {
                saving[i] = 0.17 * income;
            }
        }
    }
}


void incomeLevel3(float income, char employmentCategory, int
financialPlan, float saving[], int financialType[])
//ATIEKA INCOMELEVEL 3
{
    int i;
    for (i = 0; i < financialPlan; i++)
    {
        printf("Enter Financial Plan [1. Medical Expenses, 2.
Education, 3. Loan Repayments]: ");
        scanf("%d", &financialType[i]);

        if(employmentCategory=='G')
        {
            if (financialType[i] == 1)
            {
                saving[i] = 0.13 * income;
```

```
    }
    else if (financialType[i] == 2)
    {
        saving[i] = 0.15 * income;
    }
    else if (financialType[i] == 3)
    {
        saving[i] = 0.18 * income;
    }
}
else if(employmentCategory=='P')
{
    if (financialType[i] == 1)
    {
        saving[i] = 0.17 * income;
    }
    else if (financialType[i] == 2)
    {
        saving[i] = 0.13 * income;
    }
    else if (financialType[i] == 3)
    {
        saving[i] = 0.18 * income;
    }
}
else
{
    if (financialType[i] == 1)
    {
        saving[i] = 0.18 * income;
    }
    else if (financialType[i] == 2)
```

```
            {
                saving[i] = 0.15 * income;
            }
            else if (financialType[i] == 3)
            {
                saving[i] = 0.20 * income;
            }
        }
    }
}

float calcdiscount(float income, int dependant, int *financialType,
float saving[], float *savingafterdiscount, int financialPlan)
// NABILA RAHMAN DISCOUNT DEPENDENT
{
    float discount = 0;
      int i;
     for (i = 0; i < financialPlan; i++) {
        if (dependant < 3)
            {
            if (financialType[i] == 1 || financialType[i] == 2) {
                savingafterdiscount[i] = saving[i] - saving[i] *
0.02;
                discount += savingafterdiscount[i];
            } else if (financialType[i] == 3) {
                savingafterdiscount[i] = saving[i] - saving[i] *
0.01;
                discount += savingafterdiscount[i];
            }
        }
            else if (dependant < 6) {
            if (financialType[i] == 1 || financialType[i] == 2) {
```

```
                savingafterdiscount[i] = saving[i] - saving[i] *
0.04;
                discount += savingafterdiscount[i];
            } else if (financialType[i] == 3) {
                savingafterdiscount[i] = saving[i] - saving[i] *
0.02;
                discount += savingafterdiscount[i];
            }
        }
            else if (dependant >= 6)
            {
            if (financialType[i] == 1 || financialType[i] == 2) {
                savingafterdiscount[i] = saving[i] - saving[i] *
0.06;
                discount += savingafterdiscount[i];
            } else if (financialType[i] == 3) {
                savingafterdiscount[i] = saving[i] - saving[i] *
0.04;
                discount += savingafterdiscount[i];
            }
        }
    }
    return discount;
}
float calcserviceRate(float income) //ARIFAH SERVICE RATE CHARGE
{
      float rate;
    if(income < 5000)
    {
        rate = 0.03 * income;
    }
    else if(income < 10000)
```

```
    {
        rate = 0.08 * income;
    }
    else
    {
        rate = 0.12 * income;
    }
    return rate;
}

float calcSavings(int financialPlan, float saving[])
                  // NABILAH CACLSAVING
{
    int i;
    float total = 0;

    for (i = 0; i < financialPlan; i++)
    {
        total += saving[i];
    }
    return total;
}

void displayReceipt(int financialPlan, int *financialType, float
*saving, char employmentCategory, float income, char *name, char
*phone, float *savingafterdiscount, float totaldiscount, float
servicecharge, float totalSavings)
//ATIEKA DISPLAY RECEIPT
{
    int i;
    char type[20];
```

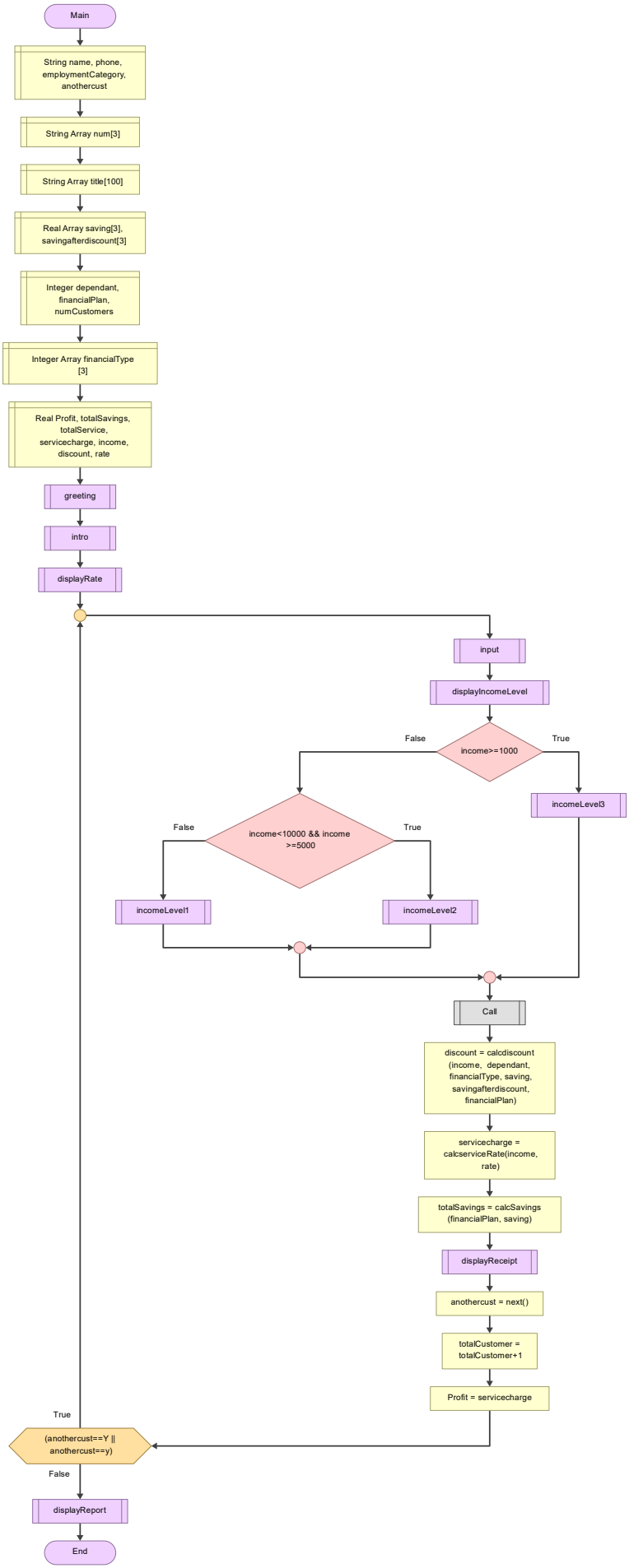
```
    printf("\n\n--------------------------- RECEIPT -----------------
-----------\n\n");
    printf("Name: %s\n", name);
      printf("Phone: %s\n", phone);
    printf("Income: RM %.2f\n", income);

    if (employmentCategory == 'G' || employmentCategory == 'g')
    {
        printf("Employment Category: Government\n");
    }
    else if (employmentCategory == 'P' || employmentCategory == 'p')
    {
        printf("Employment Category: Private\n");
    }
    else if (employmentCategory == 'S' || employmentCategory == 's')
    {
        printf("Employment Category: Self-Employment\n");
    }
    else
    {
        printf("Invalid input");
        return;
    }

    printf("Financial Plan: %d\n\n", financialPlan);

    printf("    Financial Type\tSaving\t\tSaving After Discount\n");
    for (i = 0; i < financialPlan; i++)
    {
        if (financialType[i] == 1)
        {
            strcpy(type, "Medical Expenses");
```

```
            printf("#%d. %s\tRM %.2f\tRM %.2f\n", i + 1, type,
saving[i], savingafterdiscount[i]);
        }
        else if (financialType[i] == 2)
        {
            strcpy(type, "Education");
            printf("#%d. %s\t\tRM %.2f\tRM %.2f\n", i + 1, type,
saving[i], savingafterdiscount[i]);
        }
        else if (financialType[i] == 3)
        {
            strcpy(type, "Loan Repayments");
            printf("#%d. %s\tRM %.2f\tRM %.2f\n", i + 1, type,
saving[i], savingafterdiscount[i]);
        }
        else
        {
            printf("Invalid input");
        }
    }
    printf("\nTotal discount that you get [Based on the dependents]:
RM%.2f\n", totaldiscount);
    printf("Total amount that you need to save:  RM%.2f",
totalSavings);
    printf("\nService charge You need to pay: RM%.2f",
servicecharge);

}
char next()   //  ATIEKA NEXT CUSTOMER
{
      char anothercust;
      printf("\nAnother customer? [Y: Yes, N: No]: ");
```

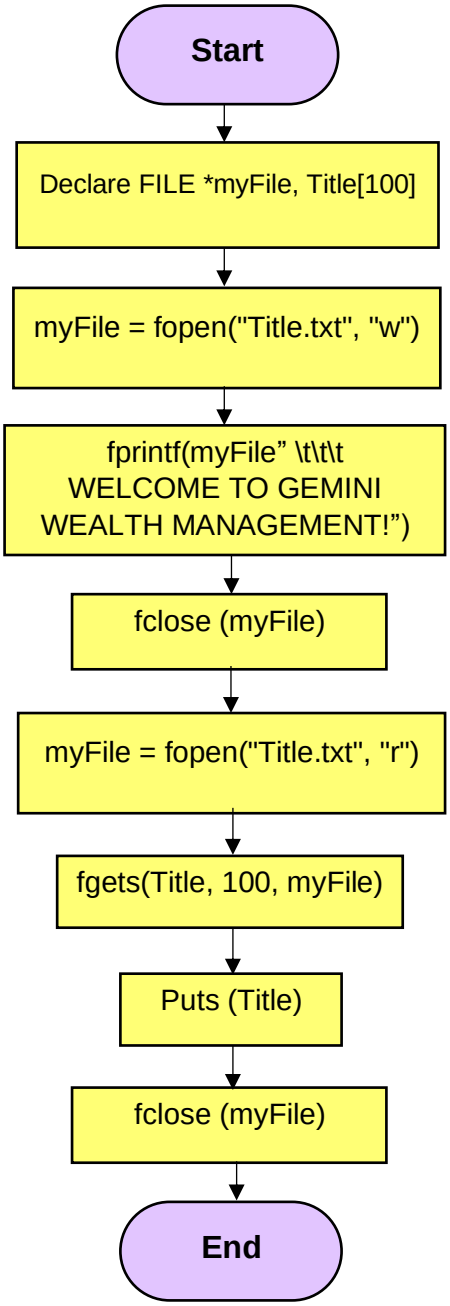
```
      scanf(" %c", &anothercust);


      return anothercust;
}
void displayReport(int totalCustomers, float Profit)
// NABILAH DISPLAY REPORT
{
    printf("\n************ Company Report ************\n");
    printf("Total Customers: %d\n", totalCustomers);
    printf("Total Profit: %.2f\n", Profit);
    printf("****************************************\n");
}
```

5. FLOWCHART

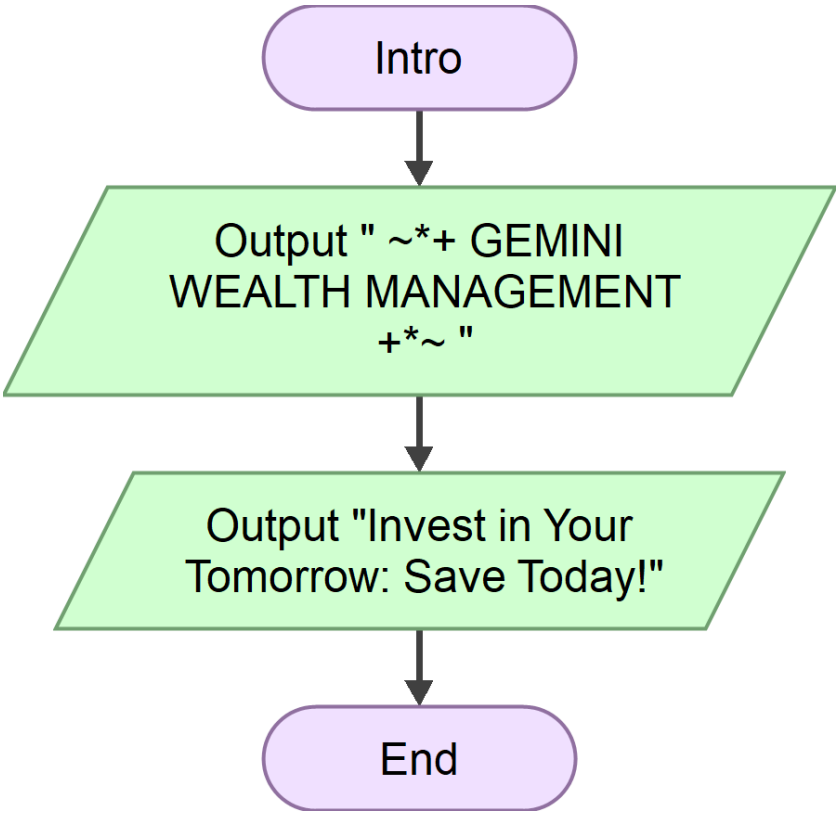
i. int main ()



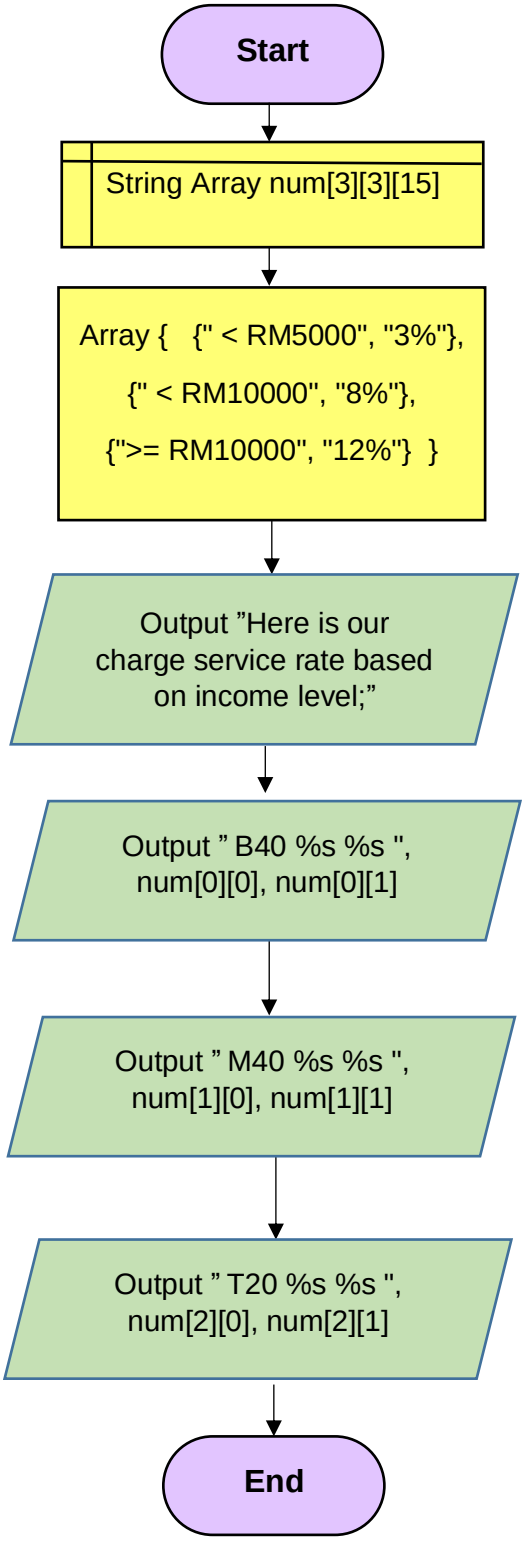
ii. void greeting ()



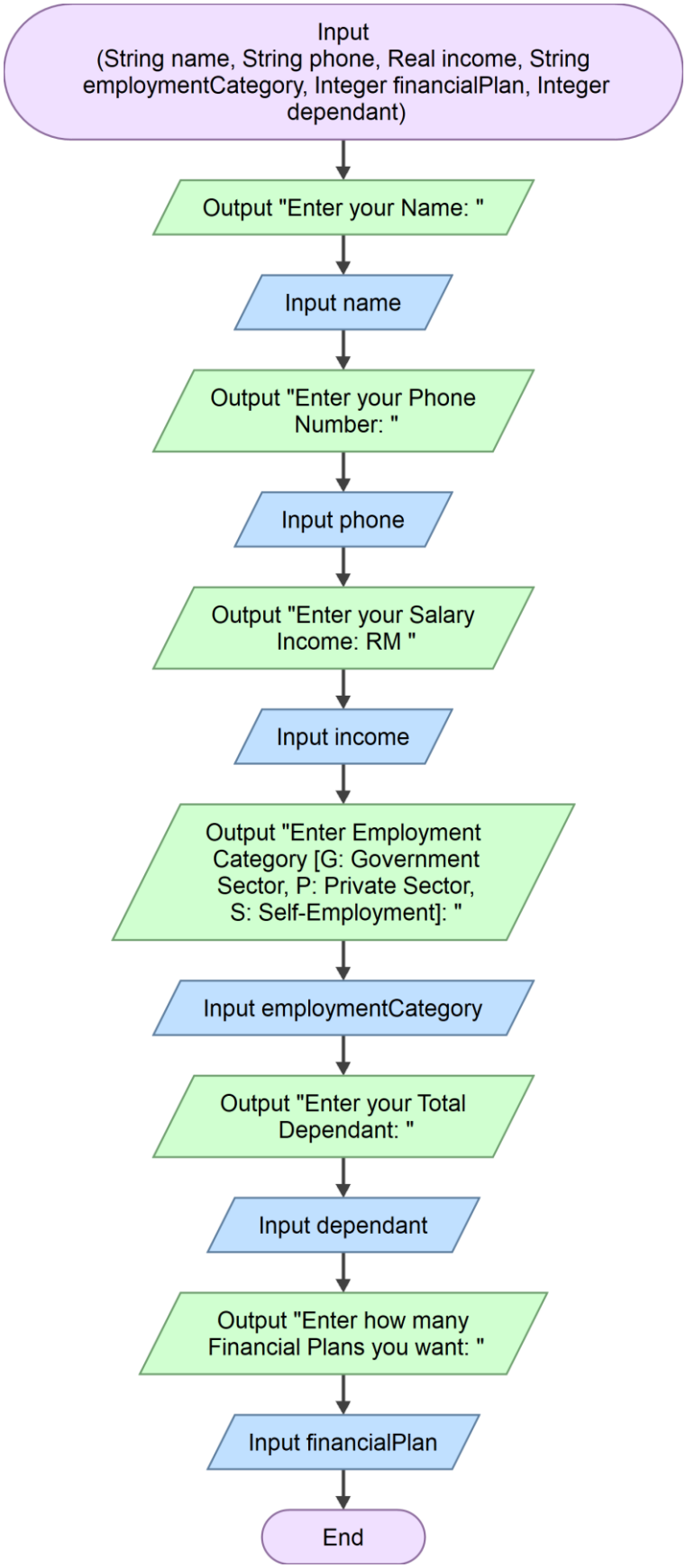
iii. void intro ()



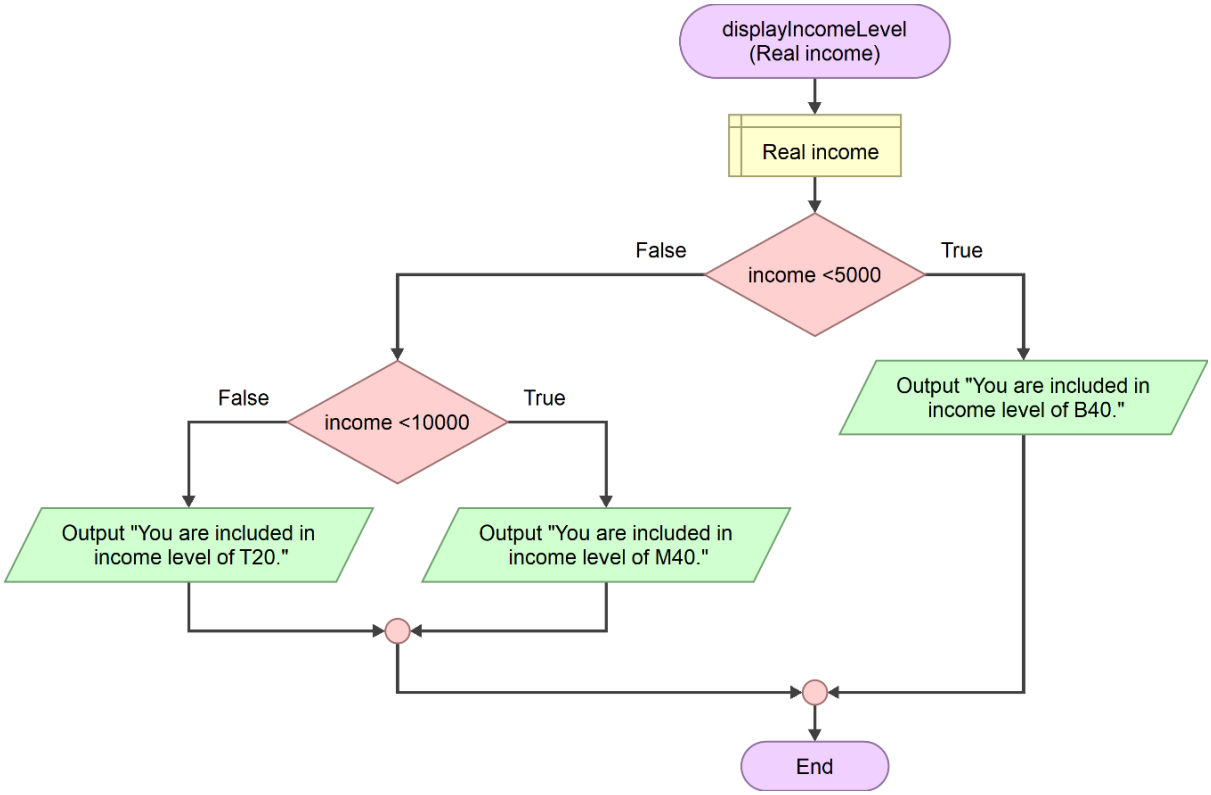
iv. void displayRate ()



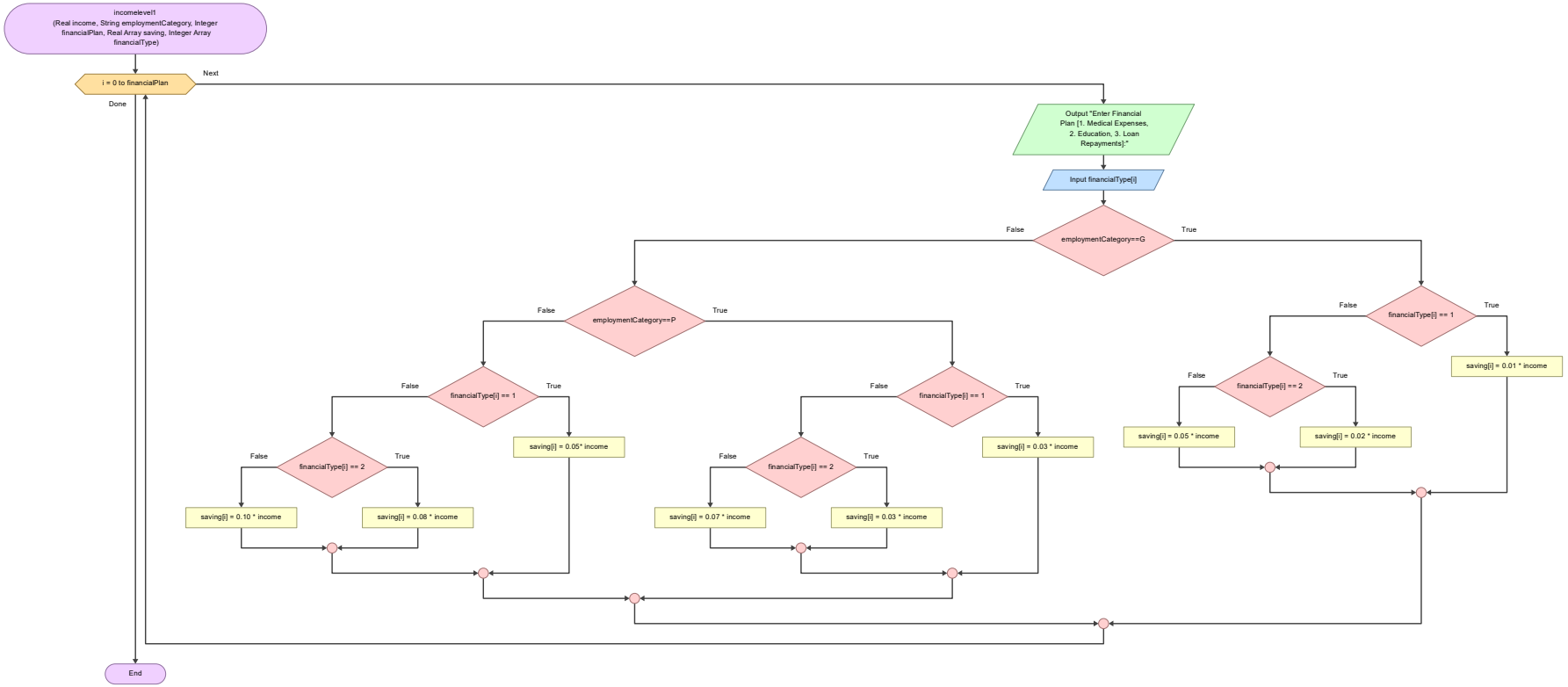
v. void input (char *name, char *phone, float *income, char *employmentCategory, int *financialPlan, int *dependant)



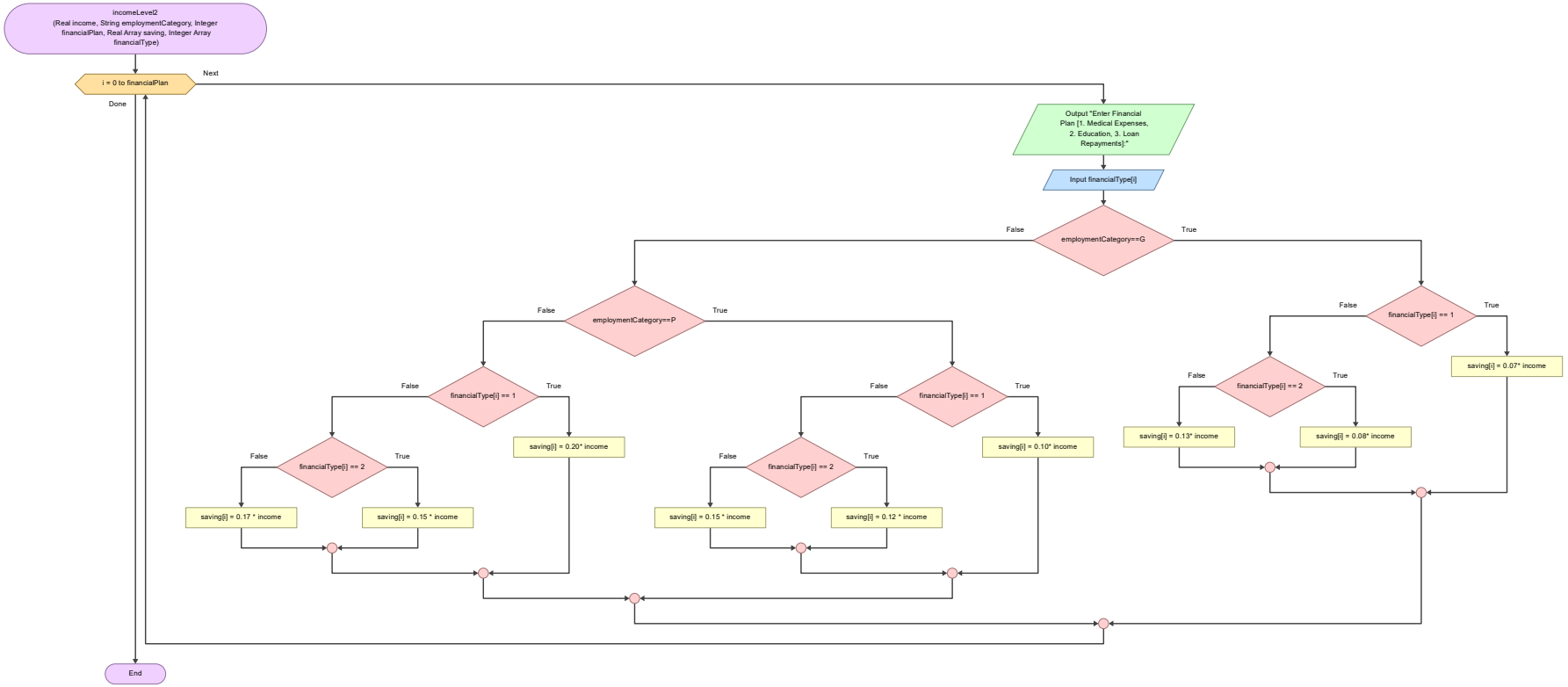
vi. void displayIncomeLevel (float income)



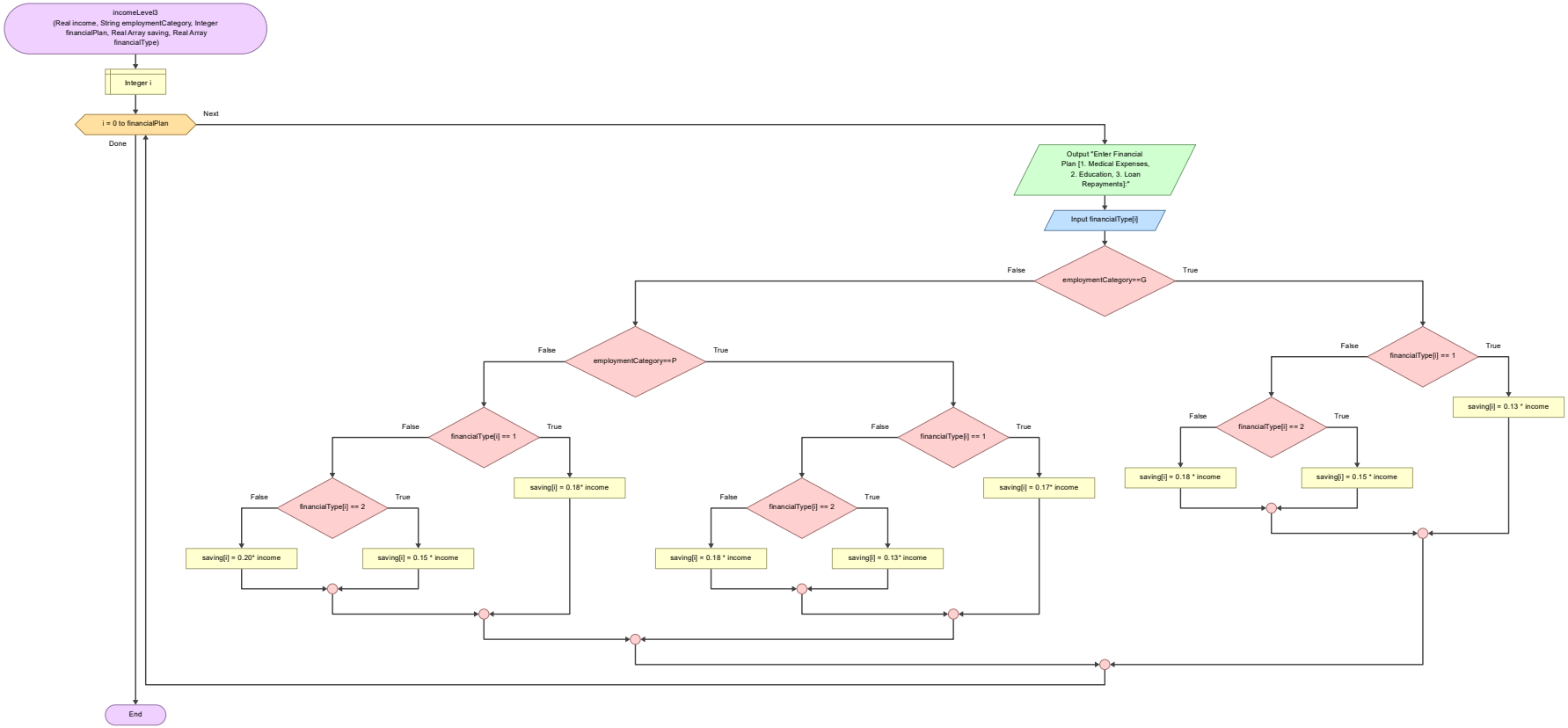
vii. void incomeLevel1 (float income, char employmentCategory, int financialPlan, float saving[], int financialType[])



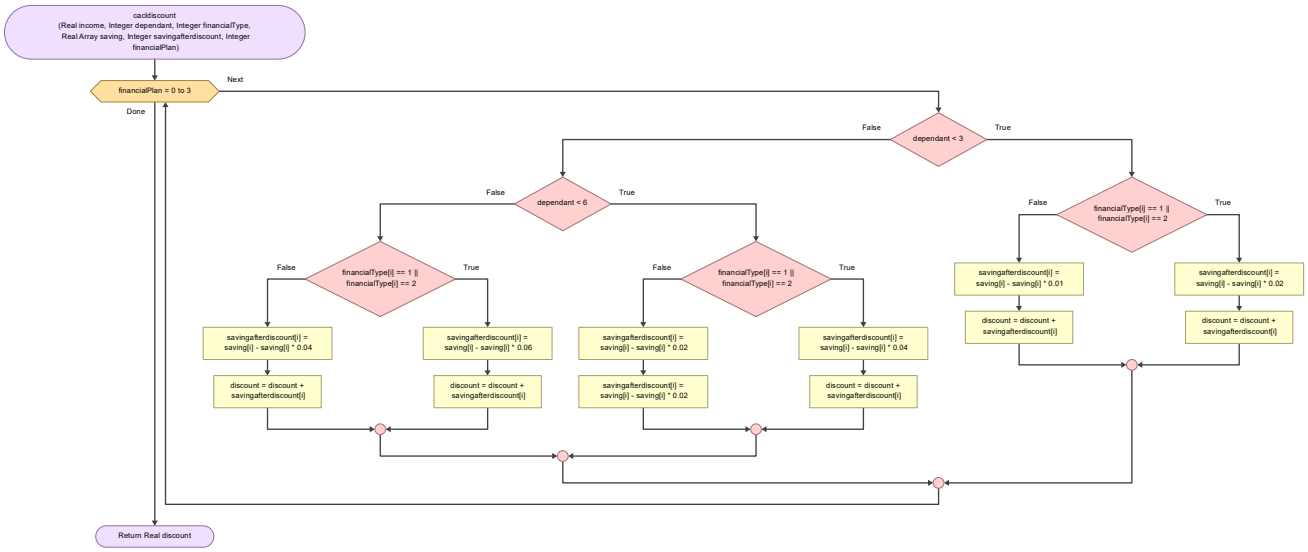
viii. void incomeLevel2 (float income, char employmentCategory, int financialPlan, float saving[], int financialType[])



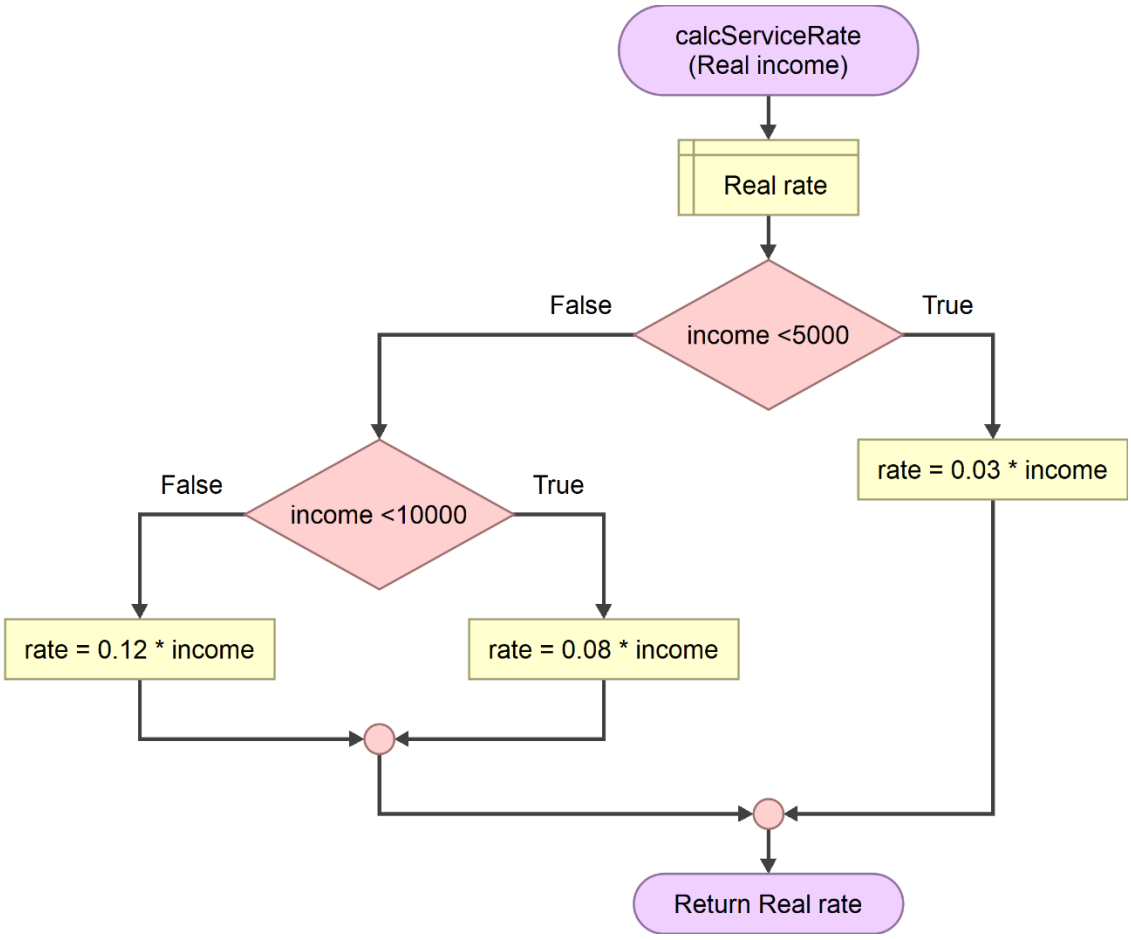
ix. void incomeLevel3 (float income, char employmentCategory, int financialPlan, float saving[], int financialType[])



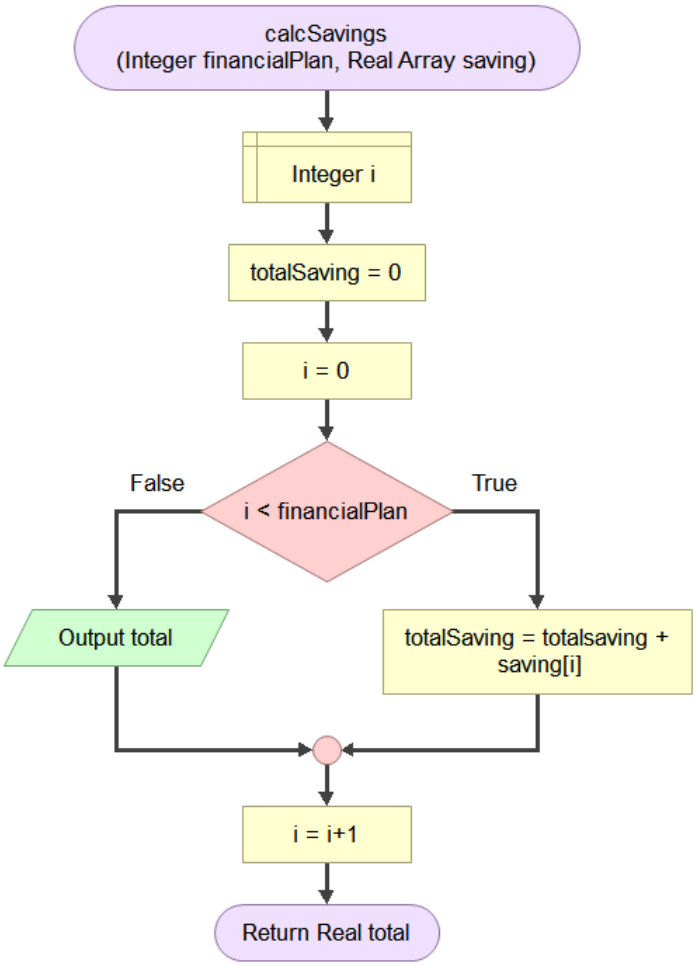
x. float calcdiscount (float income, int dependant, int *financialType, float *saving, float *savingafterdiscount, int financialPlan)



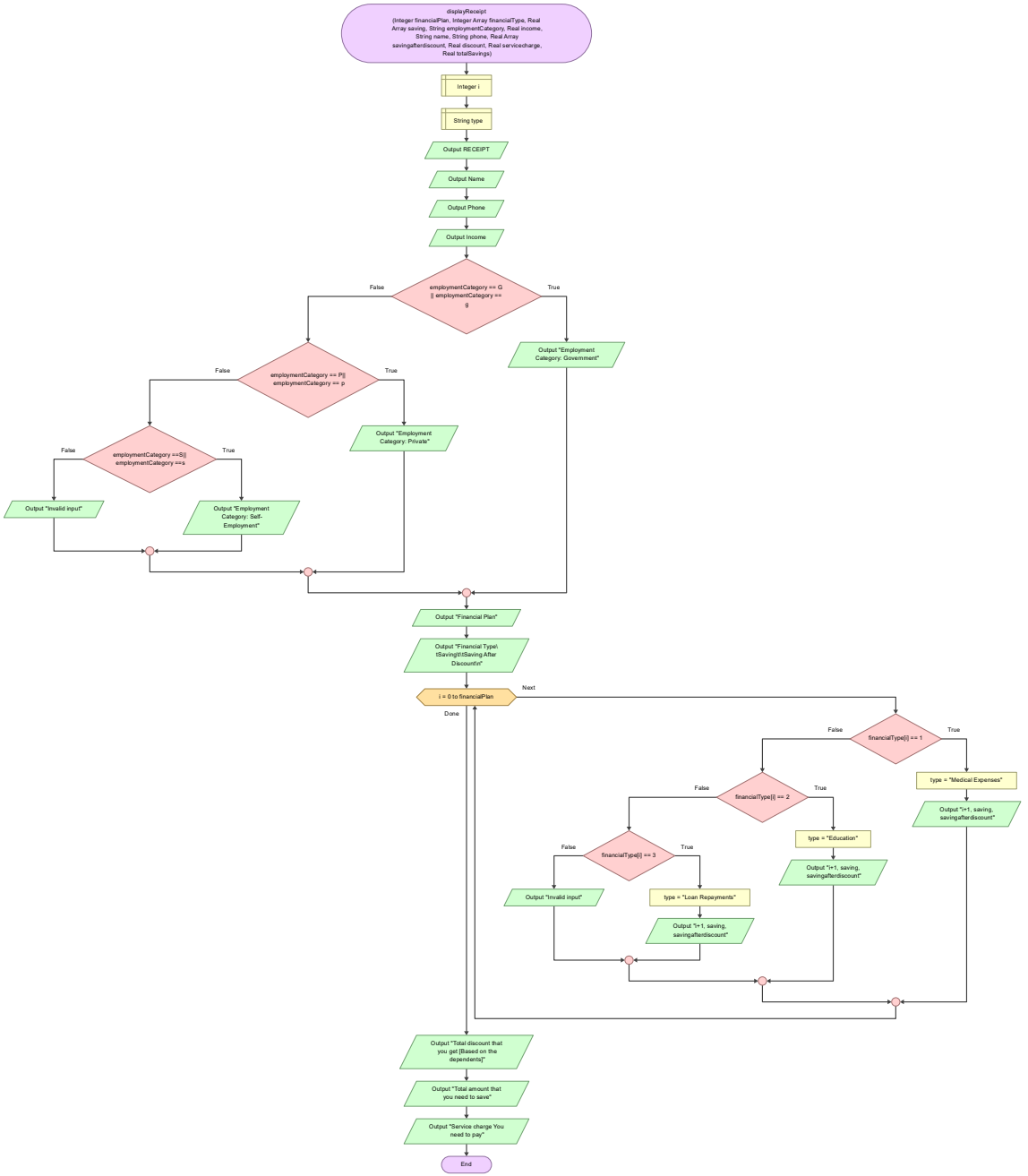
xi. float calcserviceRate (float income)



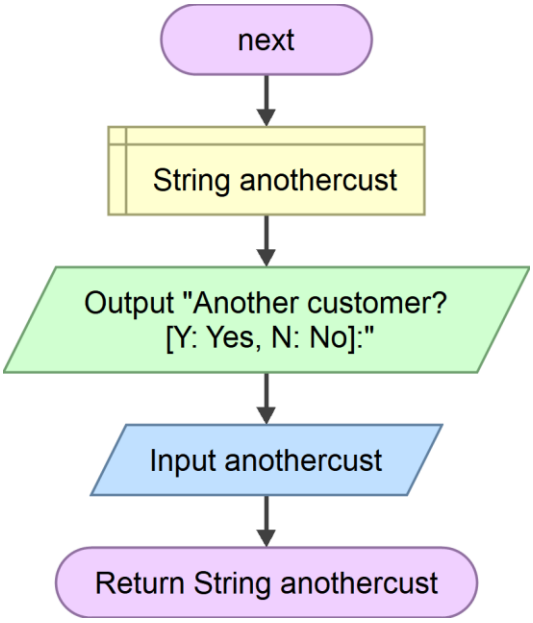
xii. float calcSavings (int financialPlan, float saving[])



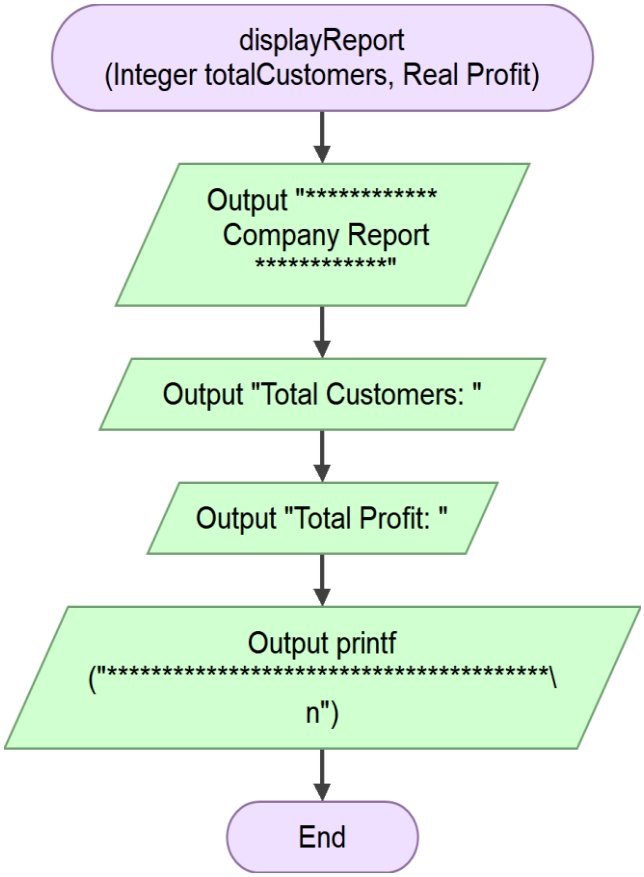
xiii. void displayReceipt (int financialPlan, int *financialType, float *saving, char employmentCategory, float income, char *name, char *phone, float *savingafterdiscount, float discount, float servicecharge, float totalSavings)



xiv. char next ()



xv. void displayReport (int totalCustomers, float Profit)



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