Zakat Calculator

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Submitted to:

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Introduction

To Calculate Zakat for Every Muslim.

Description

- **The Zakat Calculator Gives an approximation of the zakat to its new or old member.**
- **It stores their data and creates account for every user with a unique ID so that there is a proof of statement that someone paid this amount of zakat on this day/month/year.**

Tools & Techniques

- **Using File Handling to store the data of a new user with a unique ID. Moreover, through filing, comparing the Unique ID for Old Members.**
- **Using Functions to calculate the zakat.**
- **Using Structures and Array to store data.**
- **Using String Functions to Compare and store strings(sentences)**

Code:

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

struct MainFile{              // structure to store name, id
and file name for a person
     char name[90];
     char id[11];
     char file[90];
};

int Search_ID(char line[], char find[]){               //
function to separate id from string 'line' to compare with the
argument entered by user to validate if he is the customer

     char temporary[10];                      // initializing
needed char arrays / strings and integers
     char temp;

     int i,j, compare;
     int length = strlen(line);

     for (i = 0;i < length;i++){              // loop for going
through every char in string 'line'
          temp = line[i];                          // character
on i index of line will be put in temp
          if (temp == '\t'){                  // will check if
the value in temp is '\t', it is the following will run
               i++;                                        // i
increased to access the next character in 'line'
               for (j = 0;j < 7;j++){
                    temporary[j] = line[i];            // the
next 7 characters in line after '\t' will be the id for the
person, which will be stored in temporary
                    i++;           // i increased to access
the next character in 'line'
               }
               break;                     // when the id is
taken in string 'temporary', the loop will end using 'break'
statement
          }
     }
```

```
     compare = strcmp(temporary, find);                //
comparing the id entered by user and the id extracted from
'line', if its same, the strcmp function will return 0, if
not, it will return a non-zero value

     return compare;                       // return the value
returned by strcmp
}


float Gold(){                                    // Function for
calculating zakat on gold

     FILE *f_ptr;
     // Every day's gold rate will be taken from a file
'market rates' and the zakat will be calculated according to
that
     f_ptr = fopen("Files/market rates.txt","r");
     char line[20], temporary[10], temp;
     float rate;
     int i, length;

     fgets(line,20,f_ptr);               // scanning a line
from file into a string 'line'

     length = strlen(line);

     for (i = 7 ;i < length;i++){             // loop for
taking the price of gold from 'line'
          temporary[i-7] = line[i];
     }

     rate = atof(temporary);             // converting string
to float

     fclose(f_ptr);

     float zakat, x;

     printf("Enter the amount of gold (in grams) you have: ");
               // taking input how much gold user has and
comparing it with nisaab
     scanf("%f", &x);

     if (x > 87.47){
          zakat = (x * rate) * 0.025;                  //
zakat will only be applied when they have more than 87.47
grams
```

```
          return zakat;
     }
     else{
          printf("\t\tYour amount of gold is less than 87.47
gm. Zakat is not applicable on your gold\n");
          return 0;
     }
}

float Silver(){                         // Function for
calculating zakat on silver

     FILE *f_ptr;
     f_ptr = fopen("Files/market rates.txt","r");           //
Every day's silver rate will be taken from a file 'market
rates' and the zakat will be calculated according to that
     char line[20], temporary[10], temp;
     float rate;
     int i, length;

     fgets(line,20,f_ptr);                  // scanning the
second line from file into a string 'line'
     fgets(line,20,f_ptr);

     length = strlen(line);             // loop for taking the
price of silver from 'line'

     for (i = 10;i < length;i++){            // loop for
taking the price of silver from 'line'
          temporary[i-7] = line[i];
     }

     rate = atof(temporary);       // converting string to
float

     fclose(f_ptr);

     float zakat, x;

     printf("Enter the amount of silver (in grams) you have:
");            // taking input how much gold user has and
comparing it with nisaab
     scanf("%f", &x);

     if (x > 612.35){                   // zakat will only be
applied when they have more than 612.35 grams
          zakat = (x * rate) * 0.025;
          return zakat;
```

```
     }
     else{
          printf("\t\tYour amount of silver is less than
612.35 gm. Zakat is not applicable on your silver\n"); //if
silver is less than the limit no zakat will be applied
          return 0;
     }
}

float Personal(){ //Function on Calculating Zakat Of Personal
Wealth/Cash/Money

     float zakat, x;

     printf("Enter the amount of personal wealth / cash (in
rupees) you have: ");//taking input of the amount to calculate
zakat
     scanf("%f", &x);

     if (x >= 100000){
        zakat = (x * 0.025);//calculating zakat if the amount
is above Rs.100000/-
          return zakat;
     }
     else{
          printf("\tAmount is Less that 100000 Rs. Zakat not
Applicable on your Personal Wealth.\n");//if amount is less
than 100000 no zakat would be applied
          return 0;
     }
}

float Agriculture(){                //Creating a function of
Agricultural Wealth (Profit)

     float zakat, x;
     int choice;

     printf("Enter the total earning from Agriculture this
year: ");
    scanf("%f", &x);                //input the total profit of
the year through agriculture
     if(x>0){

          printf("\tPress 1 for Canal Irrigation\n\tPress 2
for Rain Water Irrigation\n\tPress 3 for Both\n\tChoice: ");
          scanf("%d", &choice);                    //due to
different type of zakat rates asking for the type of
```

```
irrigation performed on the agriculture.

          switch (choice){
               case 1:
                    zakat = x * 0.05;             //rate of
canal irrigation and calculating zakat
                    return zakat;
               case 2:
                    zakat = x * 0.1;              //rate of
Rain Water irrigation and calculating zakat
                    return zakat;
               case 3:
                    zakat = x * 0.075;                 //rate
of Both  irrigation involved and calculating zakat
                    return zakat;
          }                                   //made 3 cases
for the zakat to be calculated
     }
     else{
          printf("\tZakat is not applicable on your
Agriculture\n");
          return 0;                           //if there is no
earning or no agricultural land so no zakat would be applied
     }
}

float Others(){
     //making a function of other belonging and equvalant for
zakat to be calculated in precision.

     float zakat, x;
     char choice;

     printf("Do you have any other things on which Zakat is
applicable? Press Y for Y or N for No\n\tChoice: ");
               //asking the user that does he/she has any
other belonging in his/her possession on which zakat is
applicable if yes then entering the amount equivalent for it
else returning zero for it.
     fflush(stdin);
     scanf("%c", &choice);

     if ((choice == 'Y') || (choice == 'y')){
          printf("\tEnter the equivalent amount of other goods
you have: ");
          scanf("%f", &x);
          zakat = x * 0.025;                  //if there is
some equivalent zakat so the rate is applied on the equivalent
```

```
amount and the zakat is return through the function
          return zakat;
     }
     else if ((choice == 'N') || (choice == 'n')){
          return 0;
               //if no Other items so return 0;
     }
}


int main(){

     int choice, choice2;

     printf("------------ WELCOME TO ZAKAT CALCULATOR --------
----\n\nEnter\n1: if you are an old customer\n2: if you want
to sign up\nChoice: ");
     scanf("%d", &choice);

     FILE *ptr;                                          //file
pointer

     int flag = 0, length;
     //declaring all the variables required to be initailized
     char userfile[20] = "Files/";
     float total_zakat;
     char name[90], id[7], line[90];
     char s[2] = "\t";
     char *token, c;
     struct MainFile line_division;

     time_t t;
    time(&t);

     switch(choice) {          //using a switch case to check
that is that user is an old customer or he/she is signing up
as a new customer.
                                    //if he is an old customer
case 1 / if he is a new customer case 2 implies.

          case 1:              //if the user is an old customer
the case checks the data present in the text files and reads
to confirm his/her identity to show his old data or the last
zakat paid amount .
//             ptr = fopen("Files/customers.txt","r");
                                    //opening the text file to
read
```

```
                printf("\nEnter your name: ");
           //taking name as input to check the text files
                fflush(stdin);
                gets(name);
                printf("Enter your id: ");
                     //taking ID as an input to verify the old
customer
                fflush(stdin);
                gets(id);

                while(1){
                     ptr = fopen("Files/customers.txt","r");
                //opening the text file to read
                     while (!feof(ptr)){
           // will continue till the file has not ended
                          fgets(line, 90, ptr);

                          token = strtok(line, s);
//                        printf("\nTOKEN A: %s", token);
                          strcpy(line_division.name,token);
                          token = strtok(NULL, s);
//                        printf("\nTOKEN B: %s", token);
                          strcpy(line_division.id,token);
                          token = strtok(NULL, s);
//                        printf("\nTOKEN C: %s", token);
                          strcpy(line_division.file,token);
                          c = fgetc(ptr);
                          if (c == EOF){
                               break;
                          }
                          else{
                               fseek(ptr, -1, SEEK_CUR);
                          }
                          if
(!(strcmp(name,line_division.name)) &&
!(strcmp(id,line_division.id))){
                               flag = 1;
     // flag = 1 if the name and id from the user matches in
file
                               break;
                          }
                     }
                     fclose(ptr);

                     if (flag == 1){


     strncat(userfile,line_division.file,11);
```

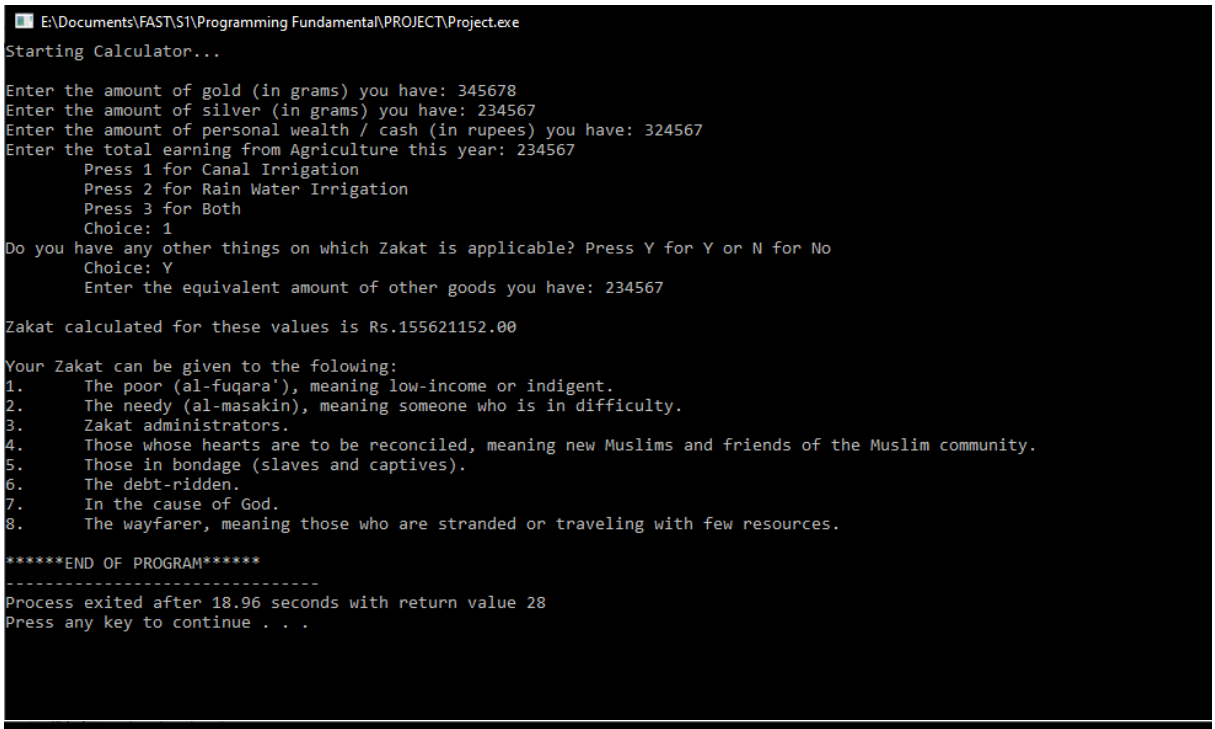
```
                    printf("\nLogin Successful!!\n\n");
                //if the user name and id matches so
operation is successfull and user can calculate and store
his/her zakat


                    printf("Choose from the following.
Enter:\n1. for Calculating new Zakat\n2. for priniting
previous records\n\tChoice: ");
                    scanf("%d", &choice2);
                    switch (choice2){
                         case 1:
                              ptr = fopen(userfile,"a");
                              //opening the text file to
append so that the new zakat calculated is added to the users
history
                              printf("\nStarting
Calculator...\n\n");

                              total_zakat = Gold() +
Silver() + Personal() + Agriculture() + Others();
          //calculating zakat through the declared functions

                              printf("\nZakat calculated
for these values is Rs.%.2lf", total_zakat);
                              fprintf(ptr, "Zakat
calculated is Rs.%.2lf on %s",  total_zakat, ctime(&t));
          //printing the total zakat and displaying the date &
time at which calculated
                              fclose(ptr);
                              break;
                         case 2:

                              ptr = fopen(userfile,"r");
                    //opening the text file to read all
the records
                              printf("\nYour history with
us:\n");
                              do{
                                   c = fgetc(ptr);
                //printing all the data in the file
                                   printf("%c", c);
                              } while(c != EOF);
                    }

                    break;
               }
```

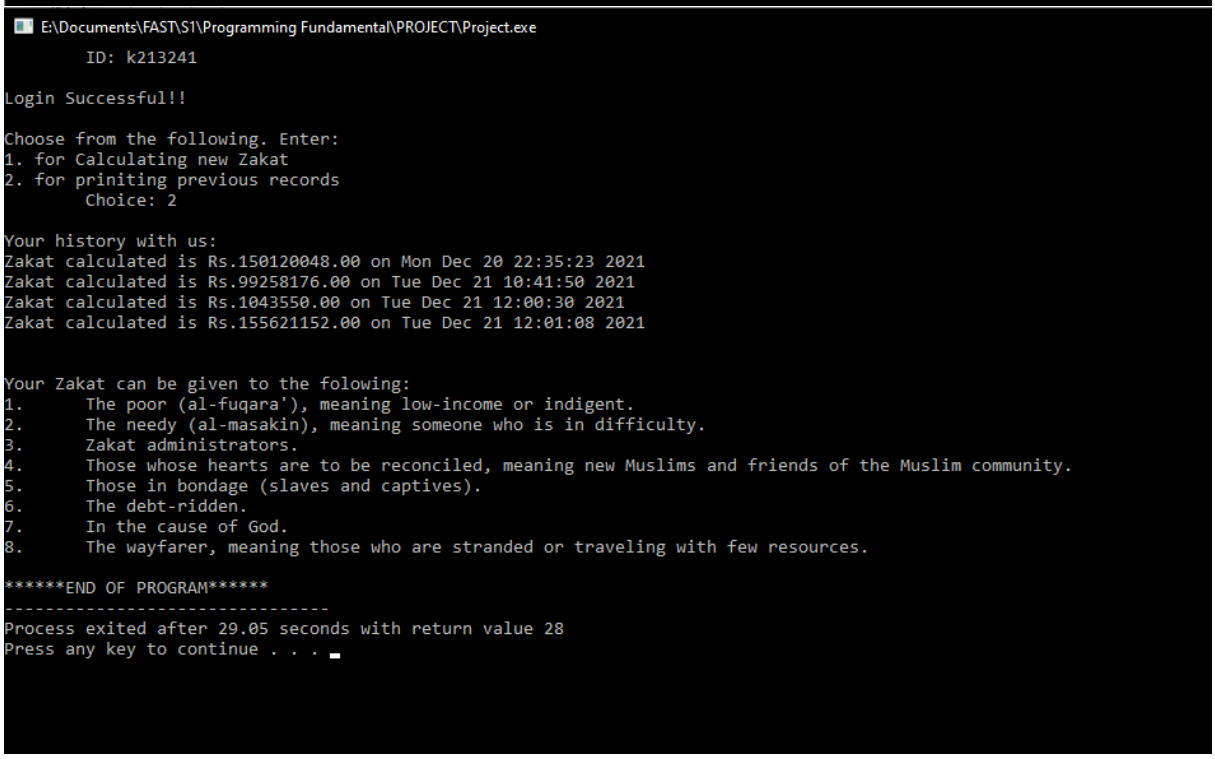
```
                    if (flag == 0){
                         printf("ID not found! Enter your
details again. \n\tName: ");                  //if the user
entered wrong credentials id so an error is displayed to re-
write the name and id again
                         fflush(stdin);
                         gets(name);
                         printf("\tID: ");
                         fflush(stdin);
                         gets(id);
                    }
               }
               break;

          case 2:

               printf("\nEnter your name: ");
                    //taking users name as input to
store/create his/her new id in the data base
               fflush(stdin);
               gets(name);

               printf("Enter a 7 digit id for yourself: ");
                              //entering a unique id  for the
user so that he/she can access it later
               fflush(stdin);
               gets(id);
            length = strlen(id);

            while (length != 7){
                printf("ID should be of 7 digits. Enter id
again: ");                    //validation of getting a 7
digit id else entering it again in the correct format
                fflush(stdin);
                gets(id);
                length = strlen(id);
               }

               while(1){
                    ptr = fopen("Files/customers.txt","r");
                                   //opening the file to read
and search the id ,(is it available or not)
                    flag = 0;
                    while(!feof(ptr)){
                         fgets(line, 90, ptr);
                         if (Search_ID(line, id) == 0){
                              flag = 1;
                              break;
```

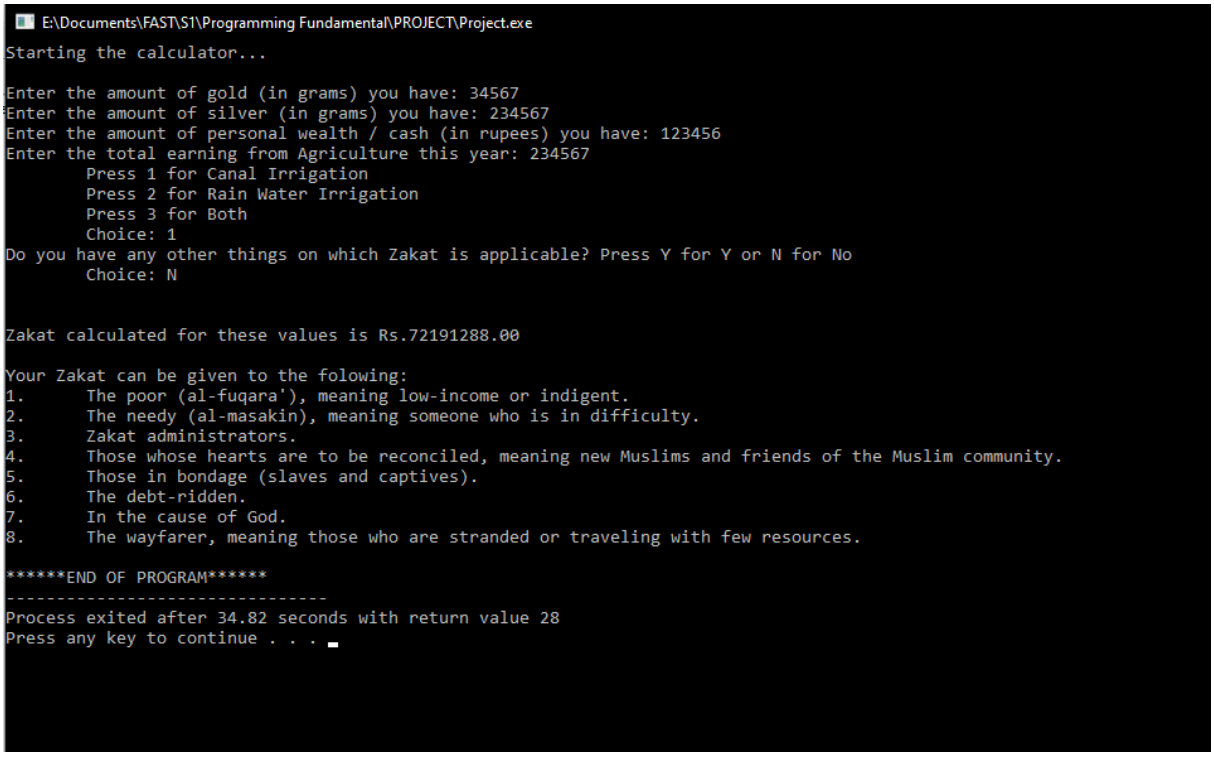
```
                    }
                }
                fclose(ptr);

                if (flag == 1){
            //checking that is the ID that user desired to
choose is available or taken
                    printf("\tID already taken. Enter a
different 7 digit ID: ");
                    fflush(stdin);
                    gets(id);
                }
                else{
                    printf("\nSign up
Complete!!\nStarting the calculator...\n\n");
                //displaying user that signup is complete
                    ptr =
fopen("Files/customers.txt","a");
     //opening the file to append the data
                    fprintf(ptr,"%s\t%s\t%s.txt\n", name,
id, id);          //appending the data, adding the user in
data
                    fclose(ptr);
                         //closing the file
                    break;
                }
          }

               strcat(userfile,id);
               strcat(userfile,".txt");
               ptr = fopen(userfile,"w");

               total_zakat = Gold() + Silver() + Personal() +
Agriculture() + Others();                    //calculating
zakat through the declared functions
            //Calculating the total zakat for the person

               fprintf(ptr, "Zakat calculated is Rs.%.2lf on
%s",  total_zakat, ctime(&t));

          //printing the total zakat and displaying the date &
time at which calculated
               printf("\n\nZakat calculated for these values
is Rs.%.2lf", total_zakat);
               fclose(ptr);

     }
```

```
     //printing the suggestions where the Zakat can be given
     printf("\n\nYour Zakat can be given to the folowing:\n1.
     The poor (al-fuqara'), meaning low-income or
indigent.\n2.  The needy (al-masakin), meaning someone who is
in difficulty.\n3.  Zakat administrators.\n4.     Those whose
hearts are to be reconciled, meaning new Muslims and friends
of the Muslim community.\n5.  Those in bondage (slaves and
captives).\n6. The debt-ridden.\n7.     In the cause of
God.\n8.  The wayfarer, meaning those who are stranded or
traveling with few resources.");

     printf("\n\n******END OF PROGRAM******");
}
```

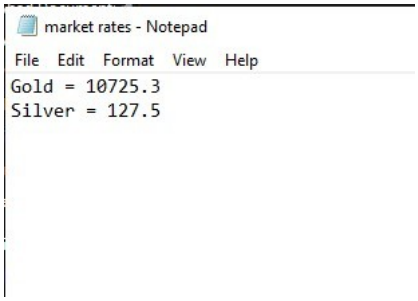
Output Screenshots:

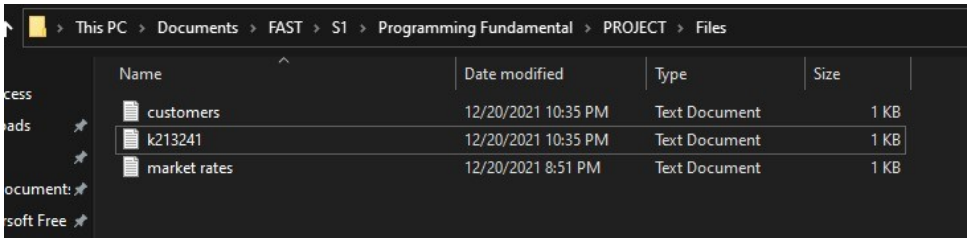


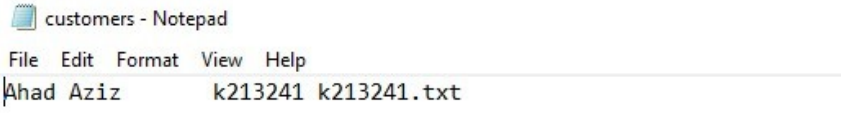


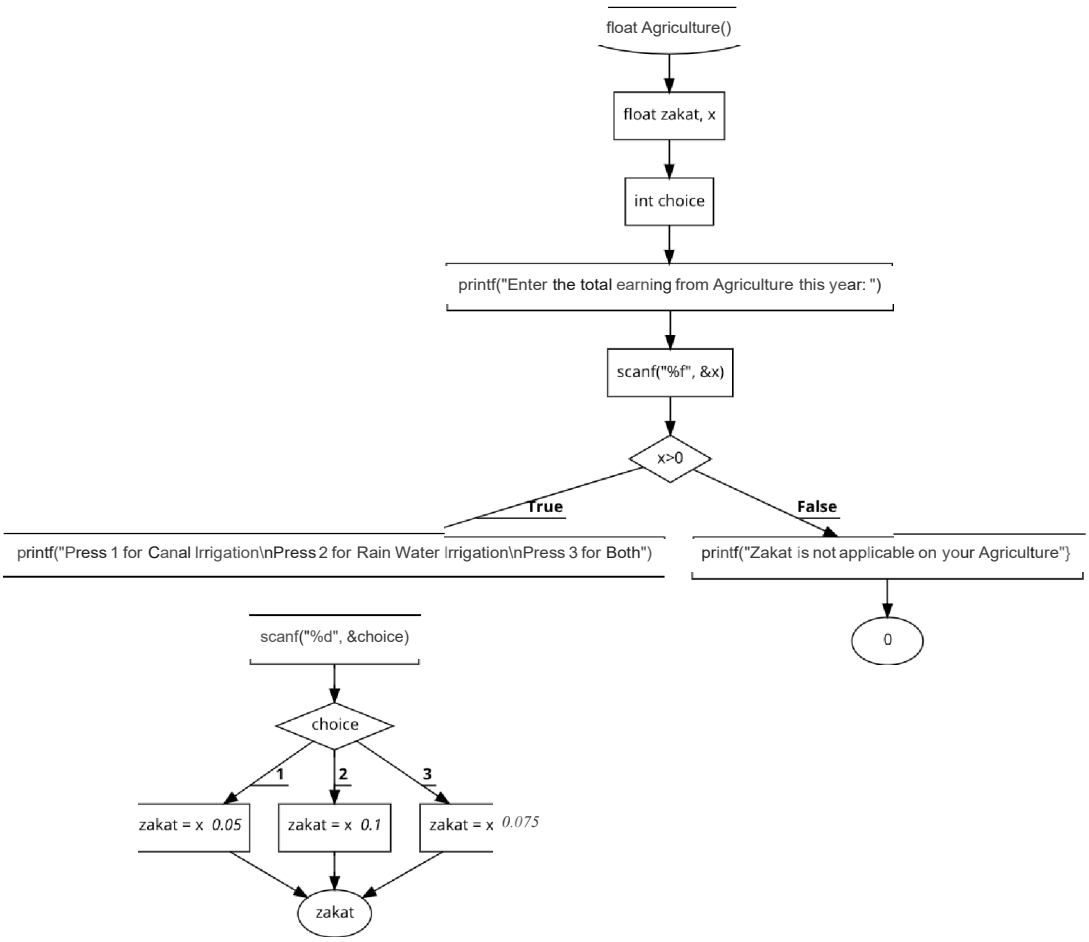

E:\Documents\FAST\S1\Programming Fundamental\PROJECT\Project.exe
Starting the calculator...
Enter the amount of gold (in grams) you have: 34567
Enter the amount of silver (in grams) you have: 234567
Enter the amount of personal wealth / cash (in rupees) you have: 123456
Enter the total earning from Agriculture this year: 234567
Press 1 for Canal Irrigation
Press 2 for Rain Water Irrigation
Press 3 for Both
Choice: 1
Do you have any other things on which Zakat is applicable? Press Y for Y or N for No
Choice: N
Zakat calculated for these values is Rs.72191288.00
Your Zakat can be given to the folowing:
1. The poor (al-fuqara'), meaning low-income or indigent.
2. The needy (al-masakin), meaning someone who is in difficulty.
3. Zakat administrators.
4. Those whose hearts are to be reconciled, meaning new Muslims and friends of the Muslim community.
5. Those in bondage (slaves and captives).
6. The debt-ridden.
7. In the cause of God.
8. The wayfarer, meaning those who are stranded or traveling with few resources.
******END OF PROGRAM******
Process exited after 34.82 seconds with return value 28
Press any key to continue . . .

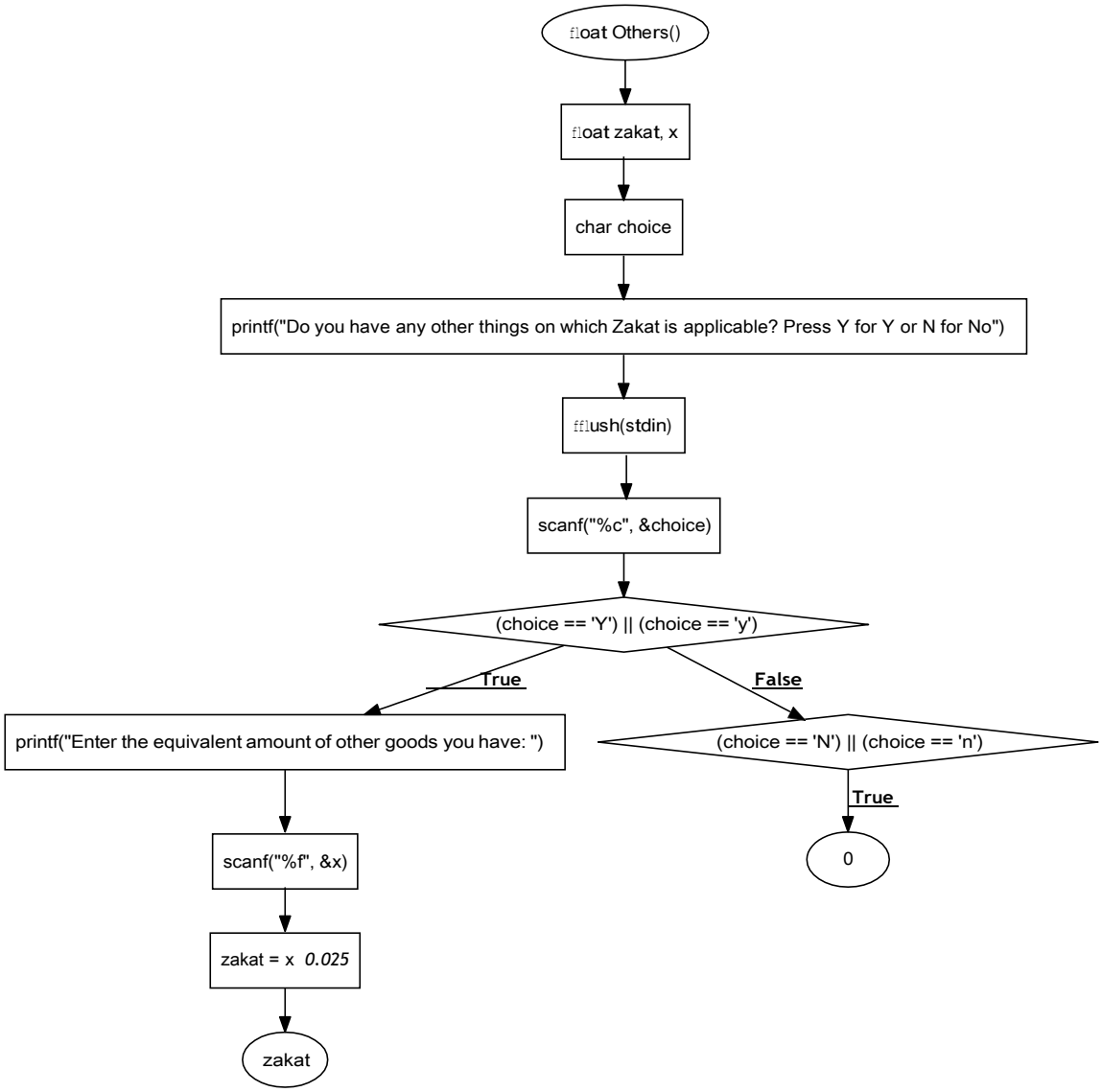
After Execution:

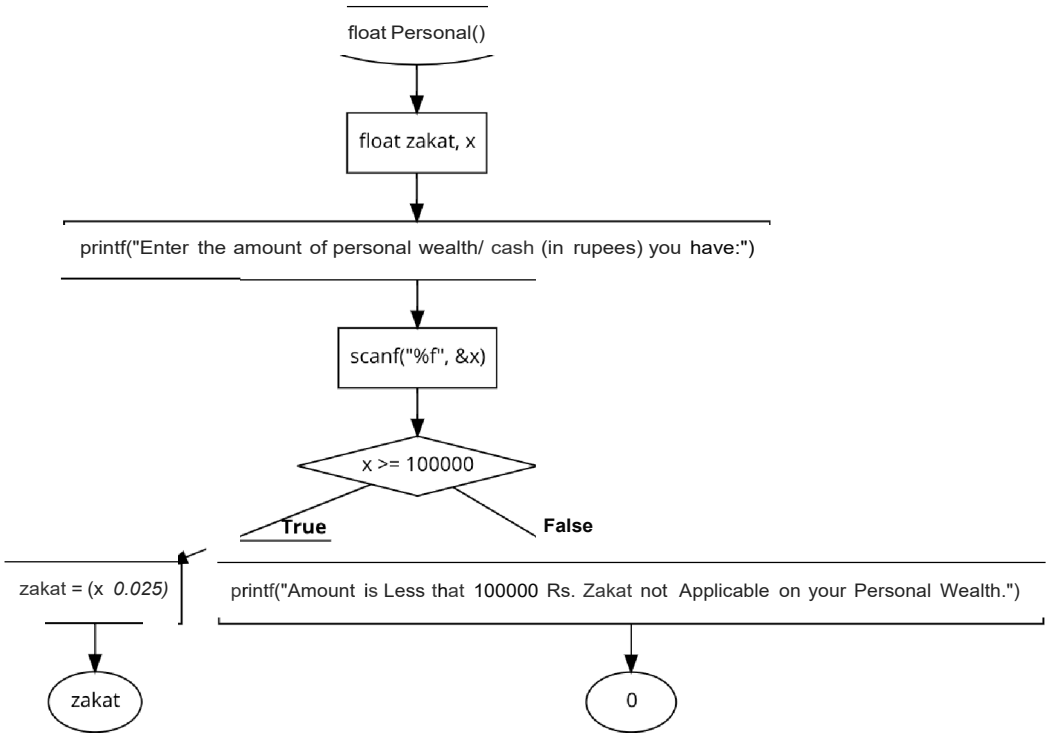


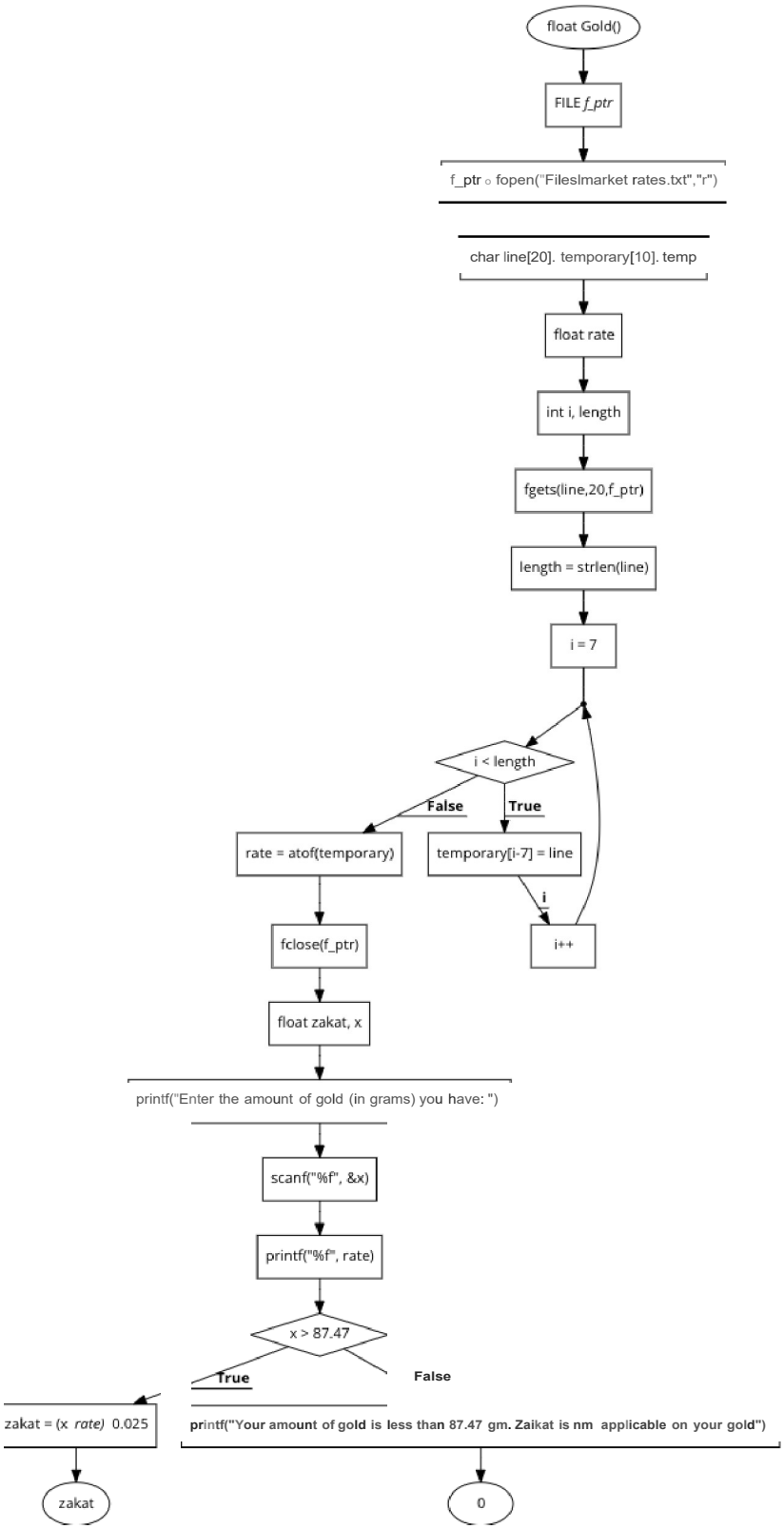


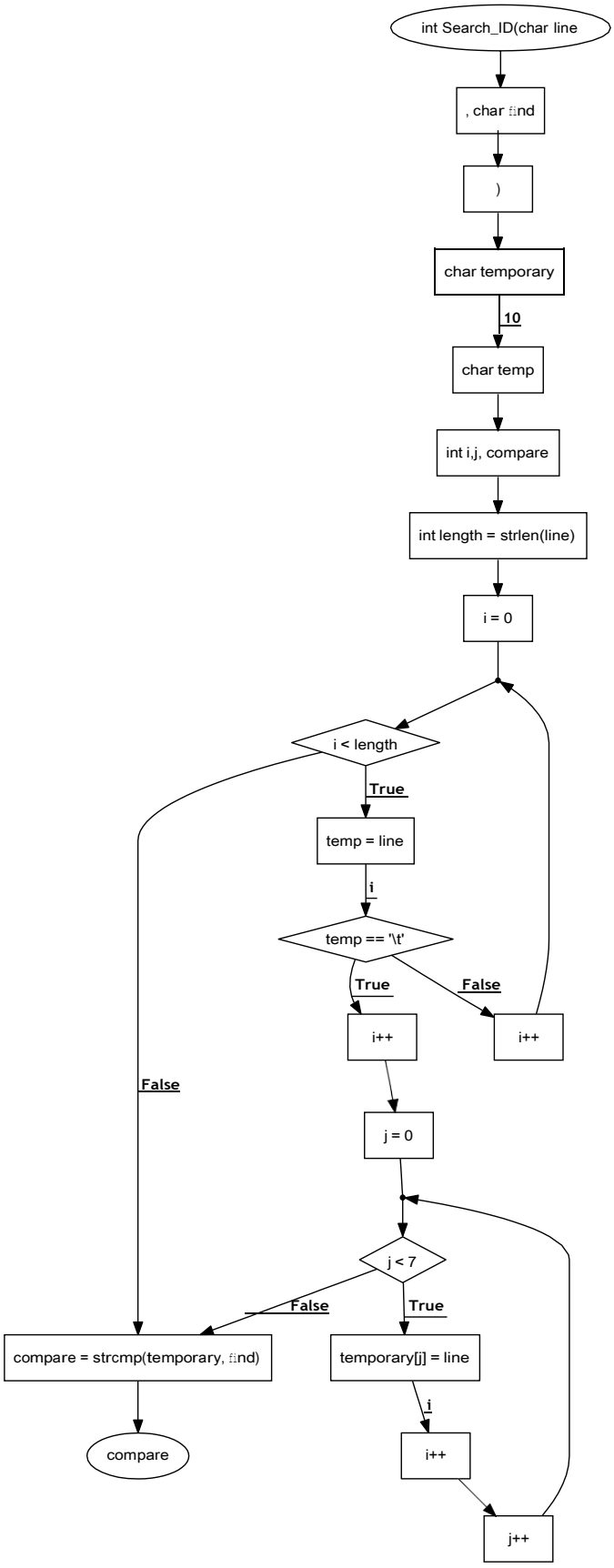


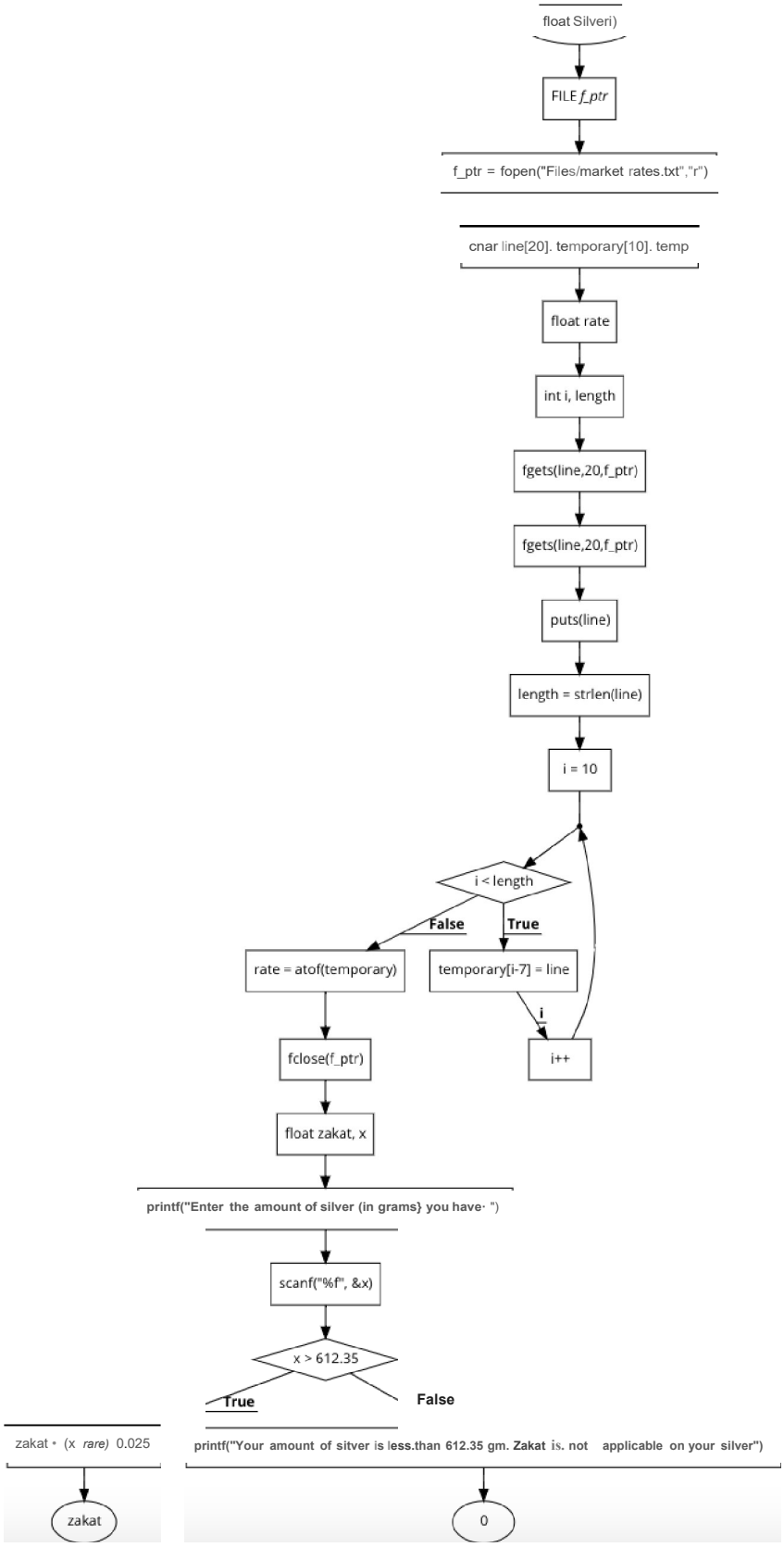

float Agriculture()
float zakat, x
int choice
printf("Enter the total earning from Agriculture this year: ")
scanf("%f", &x)
x>0
True
False
printf("Press 1 for Canal Irrigation\nPress 2 for Rain Water Irrigation\nPress 3 for Both")
printf("Zakat is not applicable on your Agriculture"}
0
scanf("%d", &choice)
choice
1
2
3
zakat = x 0.05
zakat = x 0.1
zakat = x 0.075
zakat

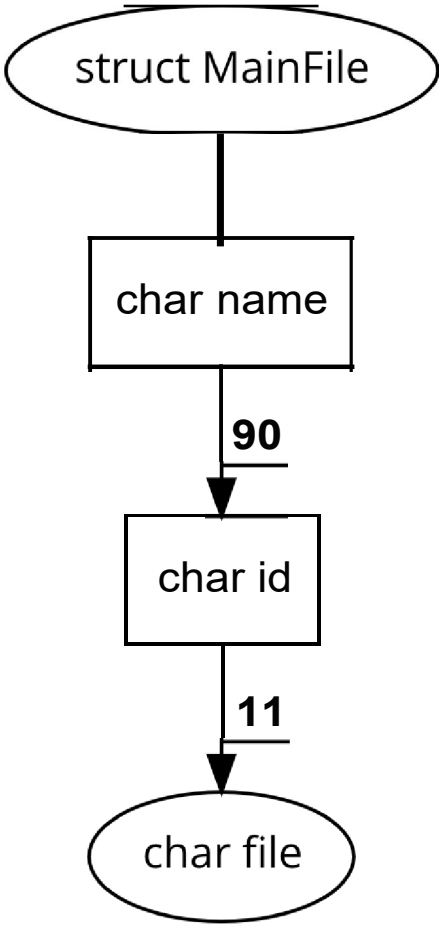

float Others()
float zakat, x
char choice
printf("Do you have any other things on which Zakat is applicable? Press Y for Y or N for No")
fflush(stdin)
scanf("%c", &choice)
(choice == 'Y') || (choice == 'y')
True
False
printf("Enter the equivalent amount of other goods you have: ")
(choice == 'N') || (choice == 'n')
True
scanf("%f", &x)
0
zakat = x 0.025
zakat

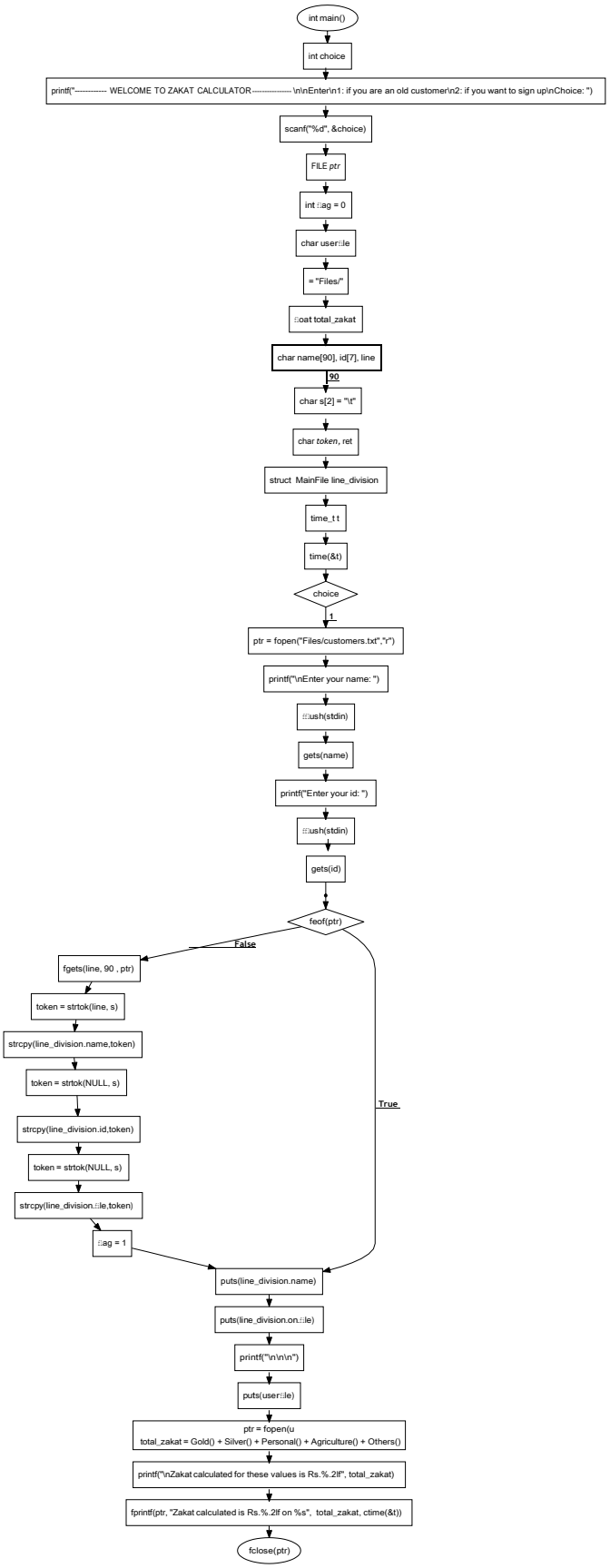

float Personal()
float zakat, x
printf("Enter the amount of personal wealth/ cash (in rupees) you have:")
scanf("%f", &x)
x >= 100000
True
False
zakat = (x 0.025)
printf("Amount is Less that 100000 Rs. Zakat not Applicable on your Personal Wealth.")
zakat
0

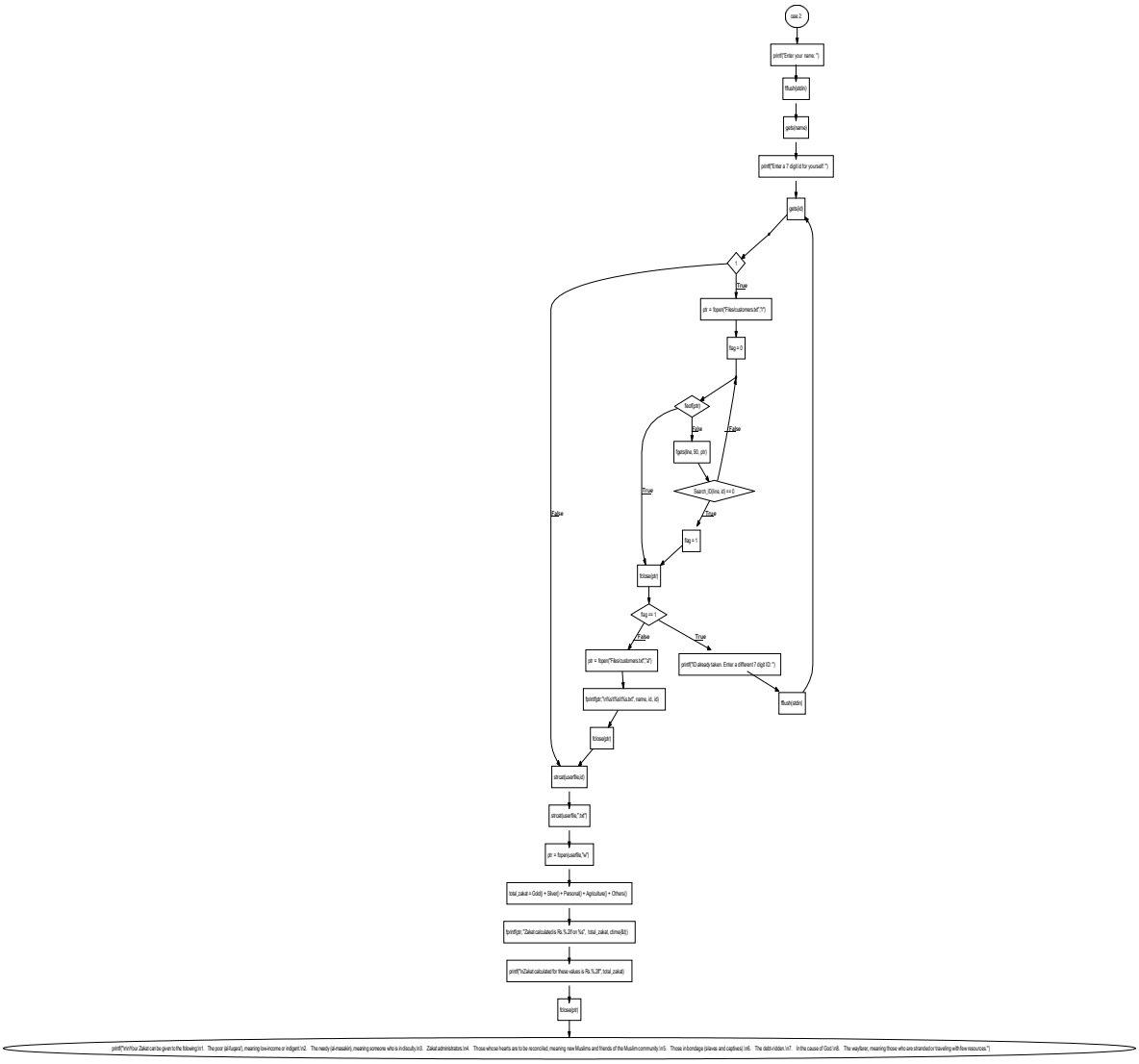

float Gold()
FILE f_ptr
f_ptr ◦ fopen("Fileslmarket rates.txt","r")
char line[20]. temporary[10]. temp
float rate
int i, length
fgets(line,20,f_ptr)
length = strlen(line)
i = 7
i < length
False
True
rate = atof(temporary)
temporary[i-7] = line
i
i++
fclose(f_ptr)
float zakat, x
printf("Enter the amount of gold (in grams) you have: ")
scanf("%f", &x)
printf("%f", rate)
x > 87.47
True
False
zakat = (x rate) 0.025
printf("Your amount of gold is less than 87.47 gm. Zaikat is nm applicable on your gold")
zakat
0


int Search_ID(char line
, char find
)
char temporary
10
char temp
int i,j, compare
int length = strlen(line)
i = 0
i < length
True
temp = line
i
temp == '\t'
True
False
i++
i++
False
j = 0
j < 7
False
True
compare = strcmp(temporary, find)
temporary[j] = line
compare
i
i++
j++


float Silveri)
FILE f_ptr
f_ptr = fopen("Files/market rates.txt","r")
cnar line[20]. temporary[10]. temp
float rate
int i, length
fgets(line,20,f_ptr)
fgets(line,20,f_ptr)
puts(line)
length = strlen(line)
i = 10
i < length
False
True
rate = atof(temporary)
temporary[i-7] = line
i
fclose(f_ptr)
i++
float zakat, x
printf("Enter the amount of silver (in grams} you have· ")
scanf("%f", &x)
x > 612.35
True
False
zakat • (x rare) 0.025
printf("Your amount of sitver is less.than 612.35 gm. Zakat is. not applicable on your silver")
zakat
0


struct MainFile
char name
90
char id
11
char file


int main()
int choice
printf("---------- WELCOME TO ZAKAT CALCULATOR ---------- \n\nEnter\n1: if you are an old customer\n2: if you want to sign up\nChoice: ")
scanf("%d", &choice)
FILE *ptr
int □ag = 0
char user□le
= "Files/"
□oat total_zakat
char name[90], id[7], line
90
char s[2] = "\t"
char *token*, ret
struct MainFile line_division
time_t t
time(&t)
choice
1
ptr = fopen("Files/customers.txt","r")
printf("\nEnter your name: ")
□ush(stdin)
gets(name)
printf("Enter your id: ")
□ush(stdin)
gets(id)
feof(ptr)
False
fgets(line, 90 , ptr)
token = strtok(line, s)
strcpy(line_division.name,token)
token = strtok(NULL, s)
strcpy(line_division.id,token)
token = strtok(NULL, s)
strcpy(line_division.□le,token)
□ag = 1
True
puts(line_division.name)
puts(line_division.on□le)
printf("\n\n\n")
puts(user□le)
ptr = fopen(u
total_zakat = Gold() + Silver() + Personal() + Agriculture() + Others()
printf("\nZakat calculated for these values is Rs.%.2lf", total_zakat)
fprintf(ptr, "Zakat calculated is Rs.%.2lf on %s", total_zakat, ctime(&t))
fclose(ptr)


case 2:
printf("Enter your name: ")
fflush(stdin)
gets(name)
printf("Enter a 7 digit id for yourself: ")
getch(id)
1
True
ptr = fopen("Files\customers.txt","r")
flag = 0
feof(ptr)
False
True
fgets(line, 80, ptr)
Search_ID(line, id) == 0
True
False
True
flag = 1
fclose(ptr)
flag == 1
False
True
ptr = fopen("Files\customers.txt","a")
printf("ID already taken. Enter a different 7 digit ID: ")
fprintf(ptr,"\n%s\t%d\t%s\t%s",name, id, id)
fflush(stdin)
fclose(ptr)
False
strcat(userfile,id)
strcat(userfile,".txt")
ptr = fopen(userfile,"w")
total_zakat = Gold[] + Silver[] + Personal[] + Agriculture[] + Others[]
fprintf(ptr, "Zakat calculated is Rs %.2f\n for %d", total_zakat, climed[id])
printf("\nZakat calculated for these values is Rs %.2f", total_zakat)
fclose(ptr)
printf("\n\nYour Zakat can be given to the following:\n1. The poor (al-fuqara'), meaning low-income or indigent.\n2. The needy (al-masakin), meaning someone who is in disculty.\n3. Zakat administrators.\n4. Those whose hearts are to be reconciled, meaning new Muslims and friends of the Muslim community.\n5. Those in bondage (slaves and captives).\n6. The debt-ridden.\n7. In the cause of God.\n8. The wayfarer, meaning those who are stranded or traveling with few resources.")