

NPI000172, Introduction To C Programming-CT-018-3-1- Individual Component

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Abstract:

Due to the outbreak of a global pandemic caused by COVID-19 which resulted in millions of death. Malaysian government to overcome the shortage in medical supplies is seeking out fundraising and donations. One of the non – profit organization (Malaysian Red Crescent Society) has been receiving supplies from various countries. So, for that reason...this particular program is built to keep track of them.

Acknowledgement:

First and foremost, I would like to give a tremendous amount of thankfulness to our subject teacher Mr. Sushil Adhikari for his assistance and support.

Assumptions:

The program is designed in such a way that every employee that has to access it, needs the same username and password. However, After five incorrect reattempts the program would close itself. An employee that has successfully entered the program can store new donation records, add more to existing donation & distribution records, view all donation and distribution records ordered from highest to lowest quantity, search and delete records. The program is created as such that an employee cannot use same supplycode for two different supplies.

Project Design:

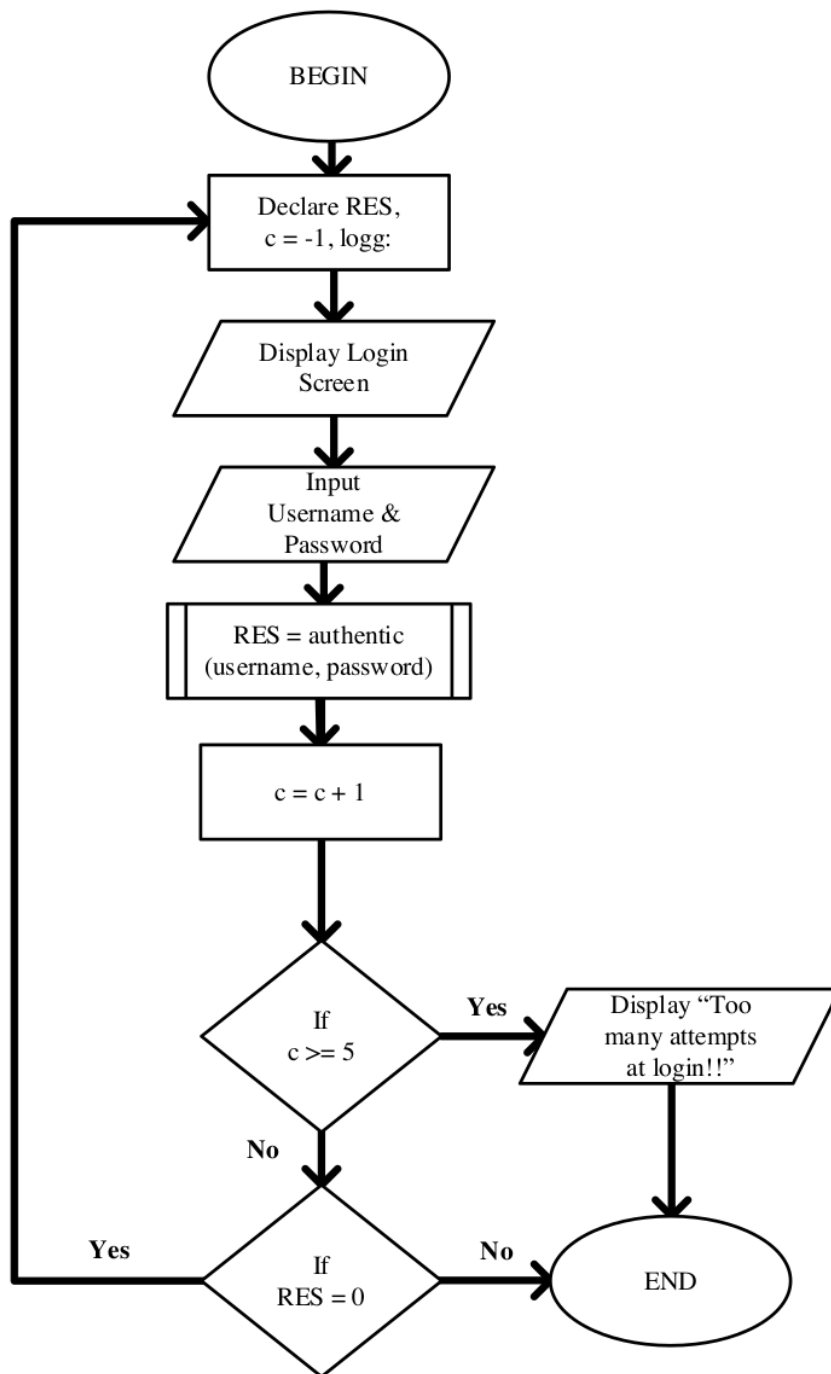
A program always begins with a pseudocode and flowchart as a working map to make the coding lot more easier and faster. Pseudocode is a simplistic description of the given program written out in a natural language line-by-line. Flowchart is the pictorial depiction of an algorithm or a pseudocode. For a simple understanding below are the pseudocode and flowchart for the program:

Menu()

Pseudocode:

- > Begin
- > Declare RES, c = -1, logg:
- > Display the Login Screen
- > Input username and password
- > RES = authentic(username, password), c = c + 1
- > if c >= 5 then Display “Too many attempts at login!!”
- > if RES = 0 then goto logg.
- > End

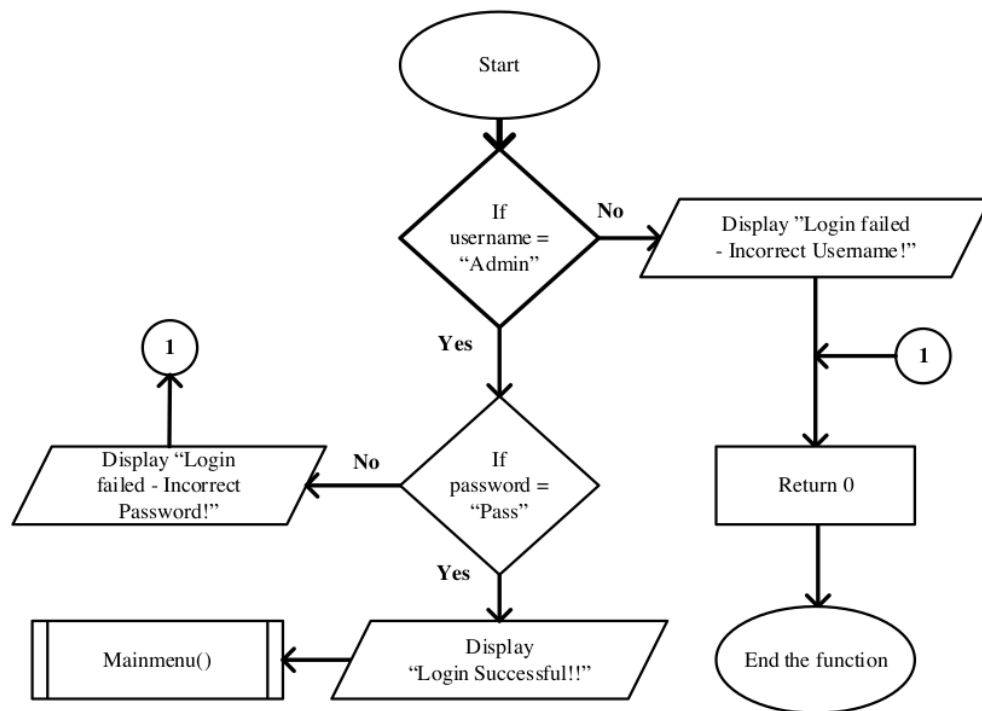
Flowchart:



Authentic()

Pseudocode:

- > Start
- > If username = "Admin" then
 - if password = "Pass" then Display "Login Successful!!" CALL mainmenu()
 - else Display "Login failed - Incorrect Password!" Return 0;
 - end if statement
- Else Display "Login failed - Incorrect Username!" Return 0
- End If statement
- > End the function

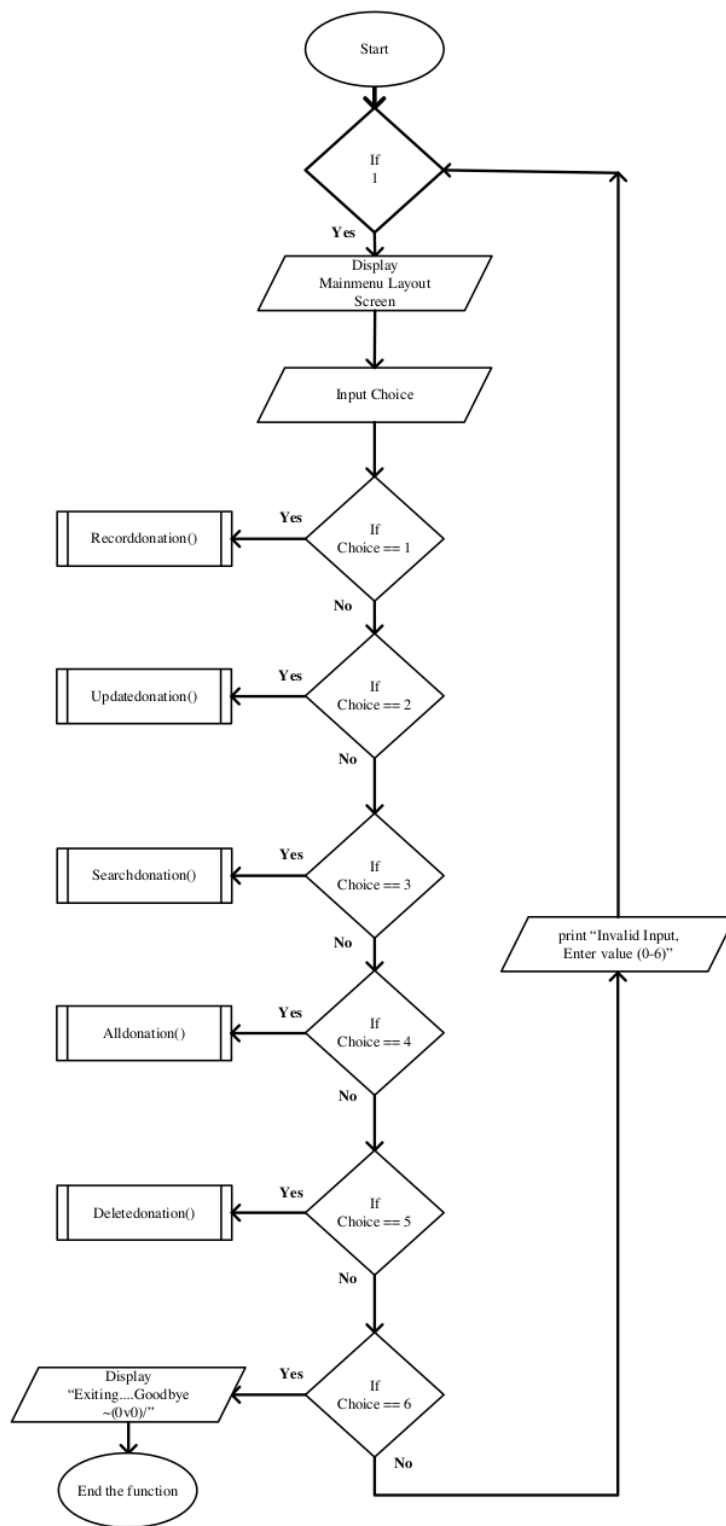


Mainmenu()

Pseudocode:

- > Begin the function.
- > Declare choice.
- > Do while (1)
 - Display Mainmenu Layout Screen.
 - Input make a choice.
 - Switch statement on the choice
 - If choice = 1 then recorddonation().
 - If choice = 2 then updatedonation().
 - If choice = 3 then searchdonation().
 - If choice = 4 then alldonation().
 - If choice = 5 then delete donation().
 - If choice = 6 then Display “Exiting....Goodbye ~(0v0)” ,
Exit program.
 - Else print “Invalid Input, Enter value (0-6)”.
- > End switch statement.
- > End do while loop.
- > End function.

Flowchart:

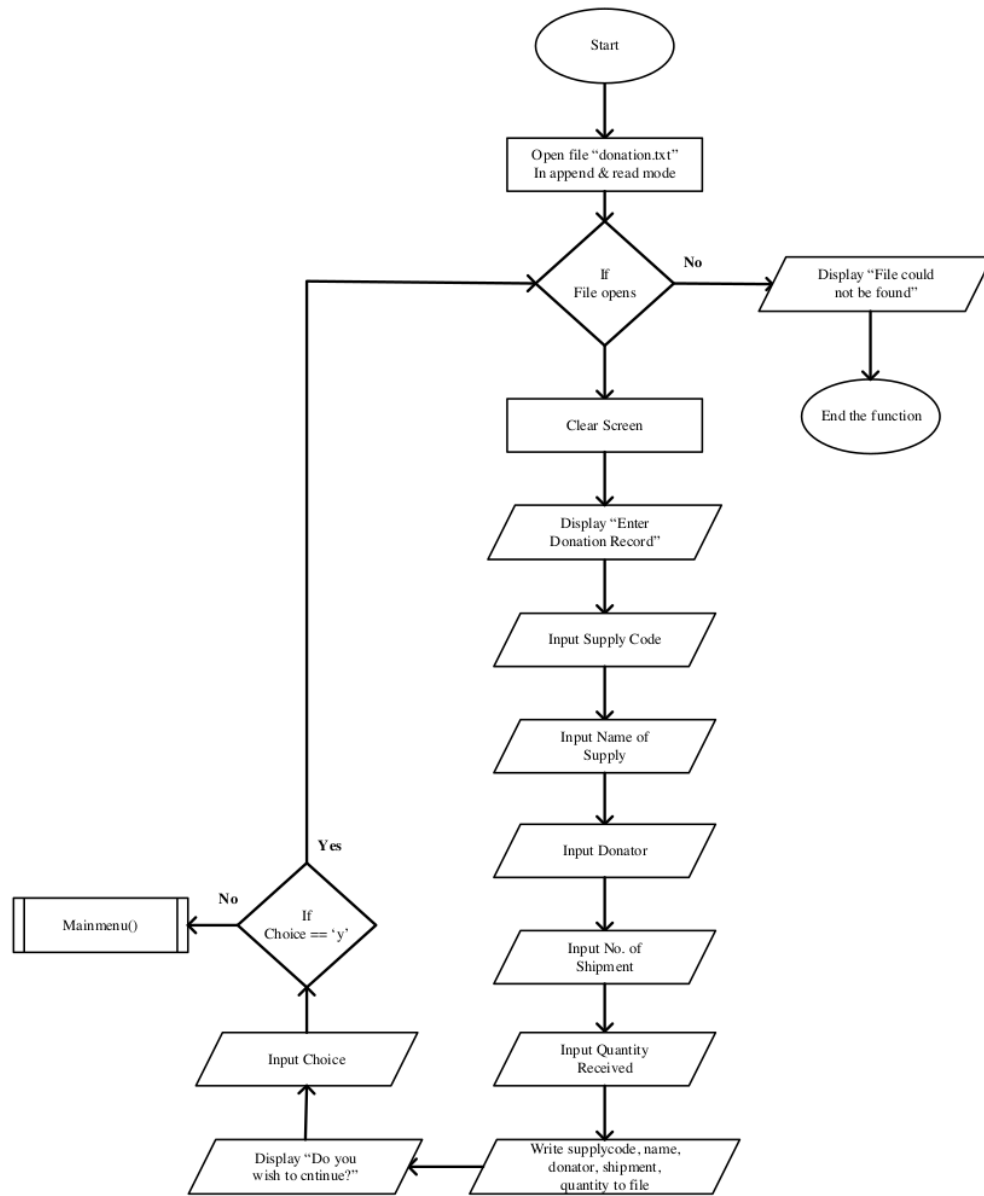


Recorddonation()

Pseudocode:

- > Start the function
- > Open file "donation.txt" in append & read mode.
- > If file opens then
 - Clear Screen
 - Display "Enter Donation Record:"
 - Input Supply Code
 - Input Name of Supply
 - Input Donator
 - Input No. of Shipment
 - Input Quantity Received (in millions)
 - Write supplycode, name, donator, shipment, quantity to file
 - Display "Do you wish to continue?"
 - Input choice
 - If choice = 'y' then goto 3rd step
 - Else call mainmenu()
 - End if statement
 - Else Display "file could not be found"
- > End if Statement
- > Close the file "donation.txt"
- > End the function

Flowchart:

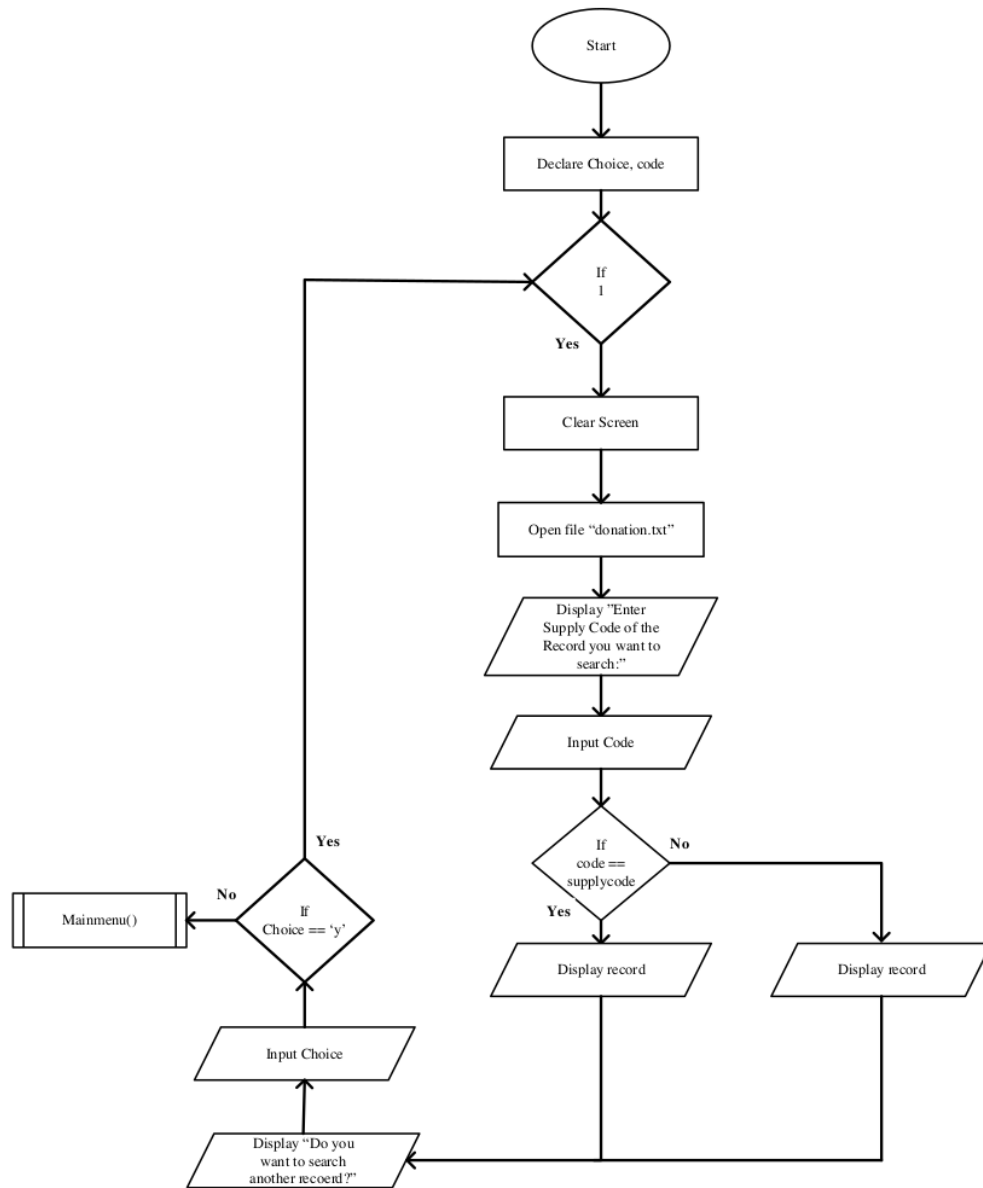


Searchdonation()

Pseudocode:

- > Start
- > Declare Choice, code
- > Do while (1)
 - Clear Screen
 - Open file "donation.txt" in read mode.
 - Display "Enter Supply Code of the Record you want to search: "
 - Input code.
 - If supplycode == code then display the record with the particular supplycode.
 - Else display "Such Supply Code doesn't exist".
 - End if statement.
 - Print "Do you want to search another record?(Y/N): "
 - Input Choice.
 - If choice == 'y' then goto 3rd step
 - Else mainmenu()
 - End if statement
- > End do while loop
- > Close file "donation.txt"
- > End function

Flowchart:

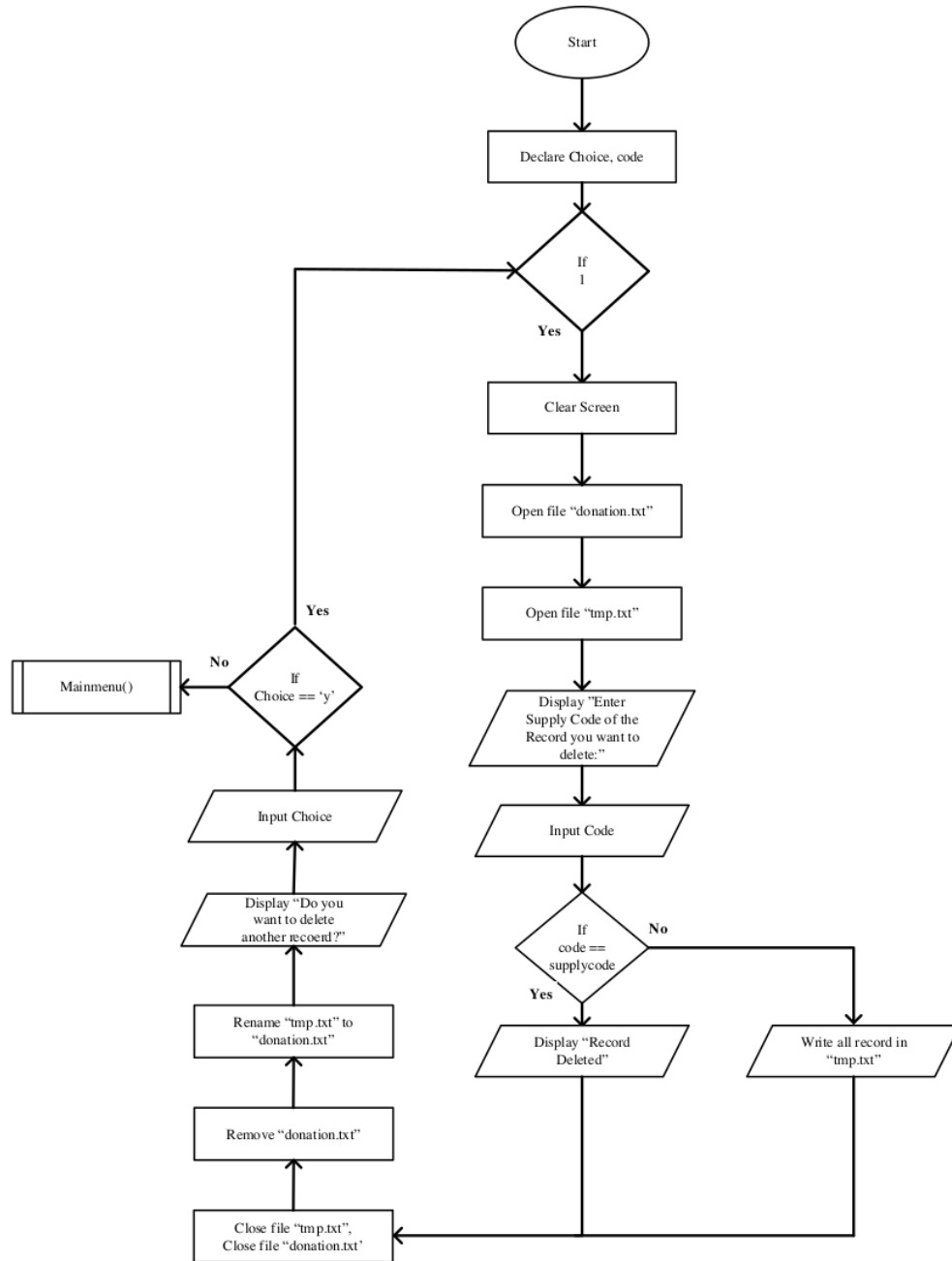


Deletedonation()

Pseudocode:

- > Start
- > Declare Choice, code
- > Do while (1)
 - Clear Screen
 - Open file "donation.txt" in read & write mode.
 - Open file "tmp.txt" in append mode
 - Display "Enter Supply Code of the Record you want to delete: "
 - Input code.
 - If supplycode == code then display "record deleted"
 - Else write record in "tmp.txt"
 - End if statement.
 - Close file "donation.txt", Close file "tmp.txt"
 - Remove current "donation.txt"
 - Rename "tmp.txt" to "donation.txt"
 - Print "Do you want to delete another record?(Y/N): "
 - Input Choice.
 - If choice == 'y' then goto 3rd step
 - Else mainmenu()
 - End if statement
- > End do while loop
- > End function.

Flowchart:



Header File Used:

Header File Name	Function
#include	Used for directing the preprocessor to include the content of a header file.
<stdio.h>	Used for input and output operation (printf and scanf).
<conio.h>	Used for showcasing clean output via getch().
<string.h>	Used for manipulating arrays of characters
<stdlib.h>	Used for exiting out of the program. → exit(0)

User defined functions:

- **mainmenu()**
It is the menu screen after logging in which has all the choices ranging from creating new records to deleting them.
- **recorddonation()**
As the name suggests it records new donation supplies, however in case an employee uses same supply code twice it can also add into previously existing record.
- **updatedonation()**
This function has 4 more sub options one to edit donation records fully, two is to add quantities into existing records, three is to subtract from donation and add in distribution record and fourth one is to Segway into mainmenu.
- **searchdonation()**
The employees can search any sort of donation supply record as long as they know the supply code.
- **alldonation()**
This function allows employees to check all donation and distribution records (based on the option they chose) sorted from highest quantity to lowest.
- **deletedonation()**
This function allows employees to delete any donation supply record for whatever reason.

- **bubblesort()**
Because of this function sorting from biggest quantity to smallest is possible for both donation and distribution record.
- **donorder()**
After bubblesort sorts the values this function stores them.
- **donationlist()**
After sorting, storing and all finally this function unleashes them all and prints the record in the sorted manner as intended.
- **distorder()**
Same as donorder but this one stores for distribution records.
- **distributionlist()**
After distorder stores them in this function releases them all and prints the distributed records in the sorted manner as intended.

Additional Features:

Here are some of the additional features outside of the minimum requirement of the given assignment added into the system to make it more easy to use and efficient.

- ✓ **Limited Login Retry:**
As the program is accessed only after going through the login screen, I decided to keep the retries limited i.e. 5 where the program will give “Too many attempts at login!!” text prompt and close until the program is run again.
- ✓ **Easy Navigation without exiting program:**
After going through the mainmenu to any of the options you can always get back to mainmenu if you want without recording, updating or deleting any record by just typing ‘exit’ making navigating in the program easy.
- ✓ **User-Friendly UI**
The program has clean, friendly and very easy to understand user interface.

Limitations:

Here lies the limitations of the program:

- ✖ Limited Quantity:
As the data type used for quantity is float, it is limited by it thus you can't record data for one supply for a long time.
- ✖ Low Security:
Because of login having a same pre-defined username and password for every employee the data security isn't very reliable.

Sample Output:

The following figures are the sample output for the given progr

Login Screen:

```

      |-----|
      | LOGIN SCREEN |
      |-----|

      Enter username: Admin

      Enter password: Pass

      Login Successful!!
      Press any key to continue...

```

Username: Admin, Password: Pass ←

Main menu:

```

      |-----|
      | Malaysia Red Crescent Society |
      |-----|

      1. Enter Inventory
      2. Update Donation
      3. Search Donation
      4. Display all Donation
      5. Delete Donation
      6. Exit

      Make a choice? _

```

This is the main menu where the magic happens ←

Enter Inventory:

```
Enter donation record:

Supply Code: FM
Name of Supply: Face_Mask
Donator: China
No. of Shipment: 2
Quantity Received (millions): 12.4

Data written successfully!

Do you wish to continue?(Y/N): _
```

You can continue recording data ←

Update Donation:

```
-----
| UPDATE RECORDS |
|-----|
| 1. Edit Donation Record |
| 2. Add Donation |
| 3. Add Distribution |
| 4. Main Menu |
| Make a choice? _ |
```

Here you can update donation by two methods ←

Edit Donation Record:

```
Enter Supply Code of the Record you want to update: FM
Current Value:
Name of Supply      Supply Code      Donator      No. of Shipment      Quantity Received (millions)
-----
Face_Mask           FM           China        2                    12.40 million

Enter all the new values to be updated:
-----
Supply Code: S
Name of Supply: Sanitizer
Donator: Korea
No. of Shipment: 1
Quantity Received (millions): 5.3

Data updated successfully!

Do you want to update another record?(Y/N):
```

You can fully edit your donation record in case you misspelt ←

Add Donation:

```
Enter Supply Code of the record you want to add: S
Current Value:
Name of Supply      Supply Code      Donator      No. of Shipment      Quantity Received (millions)
-----
Sanitizer           S              Korea        1                    5.30 million

Do you want to add values into this record?(Y/N)? Y
Add No. of Shipment: 1
Add Quantity Received (millions): 3.2_
```

Before ← Add Donation not only adds Quantity

```
Newly added record:

Name of Supply      Supply Code      Donator      No. of Shipment      Quantity Received (millions)
-----
Sanitizer           S               Korea         2                   8.50 million

Do you want to update another record?(Y/N): _
```

After ← But also Shipments

Add Distribution:

```
Enter Supply Code of the record you want to distribute: S
Current Value:

Name of Supply      Supply Code      Donator      No. of Shipment      Quantity Received (millions)
-----
Sanitizer           S               Korea         2                   8.50 million

Do you want to distribute from this record?(Y/N)? y
Subtract Quantity for Distribution: 4.3
```

Before← Adding Distribution from Donations

```
Newly added record:

Name of Supply      Supply Code      Quantity Distributed (millions)
-----
Sanitizer           S               4.30 million

Do you want to update another record?(Y/N):
```

After ← Subtracts from it and adds it to “dist.txt”

Search Donation:

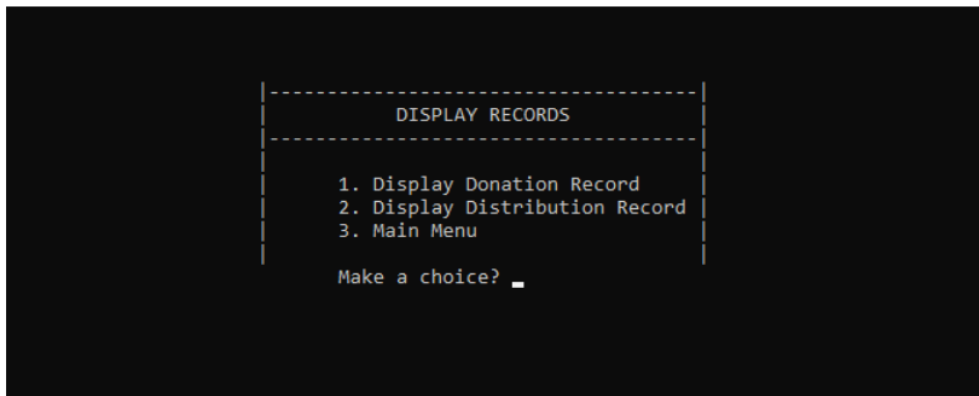
```
Enter Supply Code of the Record you want to search: S

Name of Supply      Supply Code      Donator      No. of Shipment      Quantity Received (millions)
-----
Sanitizer           S               Korea         2                   4.20 million

Do you want to search another record?(Y/N):
```

You can search any donation records here.

Display all Donations:



More options ←

Display Donation Record:

All Donation Records:				
Name of Supply	Supply Code	Donator	No. of Shipment	Quantity Received (millions)
-----	-----	-----	-----	-----
Mask	M	Japan	2	7.50 million
Sanitizer	S	Korea	2	4.20 million
Thermometer	Th	USA	1	3.10 million

Not much record right now but at least it's sorted ←

Display Distribution Record:

Name of Supply	Supply Code	Quantity Distributed (millions)
-----	-----	-----
Sanitizer	S	4.30 million
Mask	M	3.20 million
Mask	M	3.10 million
Mask	M	2.45 million
Sanitizer	S	2.10 million
Thermometer	Th	1.00 million
Mask	M	1.00 million
Thermometer	Th	0.60 million

All distributed value is subtracted from donation ←

Delete Donation:

Enter Supply Code of the Record you want to delete: Th				
Name of Supply	Supply Code	Donator	No. of Shipment	Quantity Received (millions)
-----	-----	-----	-----	-----
Thermometer	Th	USA	1	2.10 million
Are you sure you want to delete this record?(Y/N): y				
The record has been deleted				

You can delete records ←

Exit:

<div> <div>-----</div> <div>Malaysia Red Crescent Society</div> <div>-----</div> <div> 1. Enter Inventory 2. Update Donation 3. Search Donation 4. Display all Donation 5. Delete Donation 6. Exit </div> </div> <div>Make a choice? 6</div> <div>Exiting....Goodbye ~(0v0)/</div>

Have a Good day ←

References:

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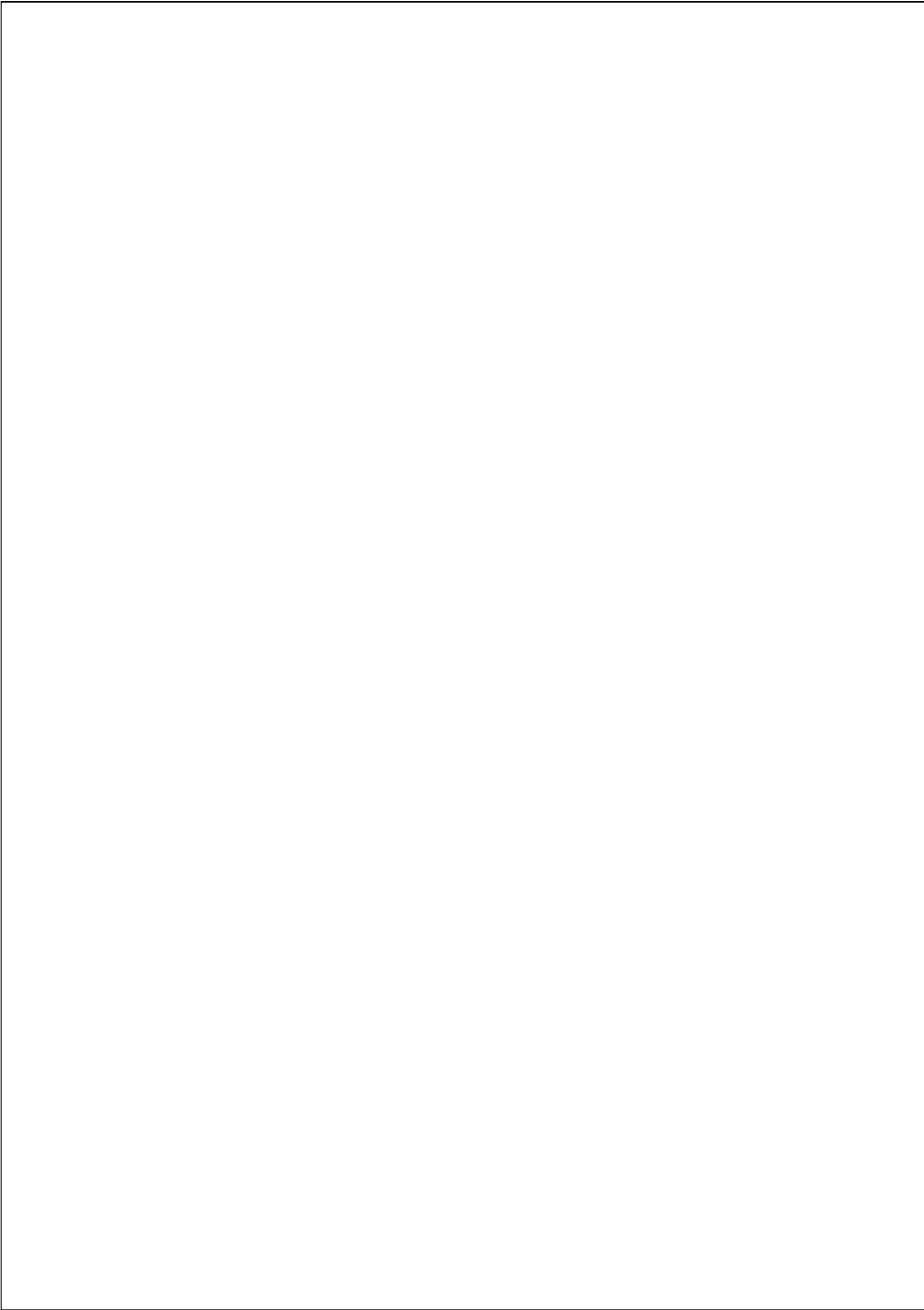
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