

PROBLEM SOLVING

(Solving various Problems using C Language)

Summer Internship Report Submitted in partial fulfillment

of the requirement for under graduate degree of

Bachelor of Technology

In

Computer Science Engineering

By

Vaishnavi Kulkarni

221710305024

(<https://github.com/Vaishnavikulkarni55>)

Under the Guidance of



Department Of Computer Science Engineering

GITAM School of Technology

GITAM (Deemed to be University)

Hyderabad-502329

July 2020

DECLARATION

I submit this industrial training work entitled “**SOLVING VARIOUS PROBLEMS WITH C LANGUAGE**” to GITAM (Deemed To Be University), Hyderabad in partial fulfillment of the requirements for the award of the degree of “**Bachelor of Technology**” in “**Computer Science Engineering**”. I declare that it was carried out independently by me under the guidance of **Mr. ,** Asst. Professor, GITAM (Deemed To Be University), Hyderabad, India.

The results embodied in this report have not been submitted to any other University or Institute for the award of any degree or diploma.

Place: HYDERABAD

VAISHNAVI KULKARNI

Date:

221710305024



GITAM (DEEMED TO BE UNIVERSITY)

Hyderabad-502329, India.

Dated:

CERTIFICATE

This is to certify that the Industrial Training Report entitled **“SOLVING VARIOUS PROBLEMS WITH C LANGUAGE”** is being submitted by VAISHNAVI KULKARNI(221710305024) in partial fulfillment of the requirement for the award of **Bachelor of Technology in Computer Science Engineering** at GITAM (Deemed To Be University), Hyderabad during the academic year 2019-20

It is faithful record work carried out by her at the **Computer Science Department**, GITAM University Hyderabad Campus under my guidance and supervision.

Mr.
Assistant Professor
Department of CSE

Dr.S.Phani Kumar
Professor and HOD
Department of CSE

ACKNOWLEDGEMENT

Apart from my effort, the success of this internship largely depends on the encouragement and guidance of many others. I take this opportunity to express my gratitude to the people who have helped me in the successful competition of this internship.

I would like to thank respected **Dr. N. Siva Prasad**, Pro Vice Chancellor, GITAM Hyderabad and **Dr. CH. Sanjay**, Principal, GITAM Hyderabad

I would like to thank respected **Dr. Phani Kumar**, Head of the Department of Computer Science Engineering for giving me such a wonderful opportunity to expand my knowledge for my own branch and giving me guidelines to present a internship report. It helped me a lot to realize of what we study for.

I would like to thank the respected faculties **Mr.** who helped me to make this internship a successful accomplishment.

I would also like to thank my friends who helped me to make my work more organized and well-stacked till the end.

VAISHNAVI KULKARNI
221710305024

TABLE OF CONTENTS :

CHAPTER 1: INTRODUCTION	1
CHAPTER 2: ONLINE SHOPPING	
2.1 Problem Statement and Concepts used	2
2.2 Coding	6
2.3 Output	10
CHAPTER 3: MORSE CODE	
3.1 Problem Statement and Concepts used	12
3.2 Coding	13
3.3 Output	14
CHAPTER 4: CALCULATE DAY FROM GIVEN DAY	
4.1 Problem Statement and Concepts used	15
4.2 Coding	17
4.3 Output	18
CHAPTER 5: GUESS THE TOSS OF A COIN	
5.1 Problem Statement and Concepts used	19
5.2 Coding	20
5.3 Output	21
CHAPTER 6: ATM MACHINE	
6.1 Problem Statement and Concepts used	22
6.2 Coding	24
6.3 Output	26
CHAPTER 7: SOFTWARE REQUIREMENTS	
7.1 Hardware Requirements	27
7.2 Software Requirements	27
REFERENCES	28

1.INTRODUCTION

Problem Solving is the Process of Designing and carrying out certain steps to reach a Solution. Five problems which are listed below are of different complexity and require different approach and logics in order to achieve desired Output/ Solution

1. Online Shopping : In this Problem we tend to see the process of online shopping and also the total cost in the cart after adding and deleting the items required by Customer.

2. Morse Code : In this Problem we can convert an English typed content into Morse Code.

3. Calculate Day from Given Date : In this Problem we can derive the day based on the date and year entered by the user.

4. Guess the Toss of a Coin : In this Problem we guess the output as head and tail and it displays as Correct or Not.

5. ATM Machine : In this problem we check multiple transactions based on the given conditions.

I have executed project in C language. I have used DEV C++ to execute the codes.

2.PROBLEM 1 : ONLINE SHOPPING

This project aims to develop an Online Shopping for Customers with the goal so that it is easy to shop your loved things. With the help of this you can carry out online shopping at your home.

2.1 CONCEPTS USED :

1. Switch Statement : A Switch Statement allows a variable to be tested for equality against a list of values. Each value is called a case, and the variable being switched on is checked for each switch case.

```
Syntax : switch(){  
            Case 1 :  
                break;  
            Case n :  
                break;  
            default :  
                break;  
        }
```

2. Do-While loop : A do while loop is similar to while loop with one exception that it executes the statements inside the body of do-while before checking the condition.

```
Syntax : do{  
            Statements;  
        }while(condition);
```

3. For loop : A For loop is a control flow statement for specifying iteration, which allows code to be executed repeatedly.

```
Syntax : for(initialization,condition,increment)  
        {  
            Statements;  
        }
```


4. Const Keyword : Variables can be declared as constants by using the const keyword before the datatype of the variable. The constant variables can be initialized once only. The default value of constant variables are zero.

Syntax : const int a;

5. If-else condition : The if-else statement in C is used to perform the operations based on some specific condition. The operations specified in if block are executed if and only if the given condition is true.

```
Syntax : if {  
    Statements;  
}  
else{  
    Statements;  
}
```

6. Static Keyword : Static keyword is mainly used for memory management. It can be used with variables, methods, blocks and nested classes.

Syntax : static int a;

7. Break Statement : The break is a keyword in C which is used to bring the program control out of the loop. The break statement is used inside loops or switch statement. The break statement breaks the loop one by one.

Syntax : break;

EXPECTED OUTPUT :

```
C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
Please Enter Your Name
Vaishnavi
Hello Vaishnavi, Welcome to our Online Shopping.
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
1
Enter
1 - Sandisk 16 GB - Rs.355
2 - Logitech Mouse- Rs.500
3 - Pendrive 16 GB - Rs.550
Any other number to exit
1
You chose Sandisk 16GB with Rs.355.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 355
Vaishnavi's cart


| Id | Items         | Quantity | Cost |
|----|---------------|----------|------|
| 0  | Sandisk 16 GB | 1        | 355  |


Total Cost
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
1
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
```

Fig 2.1.1

```
C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
Any other number to exit
2
Enter
1 - Adidas - Rs.3550
2 - Nike - Rs.5000
3 - Leecooper - Rs.2800
Any other number to exit
3
You chose Leecooper Shoes for Rs.2800.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 3155
Vaishnavi's cart


| Id | Items         | Quantity | Cost |
|----|---------------|----------|------|
| 0  | Sandisk 16 GB | 1        | 355  |
| 5  | Leecooper     | 1        | 2800 |


Total Cost
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
1
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
3
Enter
1 - Mi Note 3 - Rs.11000
2 - Nokia 3 - Rs.9866
3 - Samsung S5 - Rs.12800
Any other number to exit
```

Fig 2.1.2

```

C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
Any other number to exit
3
You chose to buy Samsung for Rs.12800.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 15955
Vaishnavi's cart
Id      Items                Quantity      Cost
0       Sandisk 16 GB          1             355
5       Leecooper               1            2800
8       Samsung s5              1           12800
Total Cost                                     15955
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
2
Enter id to delete item
0
Revised Items
Id      Items                Quantity      Cost
5       Leecooper               1            2800
8       Samsung s5              1           12800
Total Cost                                     15600
If you wish to buy anything more Enter
1 to Add Item
2 to Delete Items
Any other number to Exit
1
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles

```

Fig 2.1.3

```

C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
1
Enter
1 - Sandisk 16 GB - Rs.355
2 - Logitech Mouse- Rs.500
3 - Pendrive 16 GB - Rs.550
Any other number to exit
2
You chose Logitech Mouse with Rs.500.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 16100
Vaishnavi's cart
Id      Items                Quantity      Cost
1       Logitech Mouse          1             500
5       Leecooper               1            2800
8       Samsung s5              1           12800
Total Cost                                     16100
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
5
Your Final Cost is 16100
Thanks Vaishnavi for Choosing Us and Visit us again.
-----
Process exited after 38.28 seconds with return value 53
Press any key to continue . . .

```

Fig 2.1.4

2.2 CODING :

```
1 #include<stdio.h>
2 #include<string.h>
3 int main()
4 {
5     static int totalCost;
6     int i,j,choice,c=1,a[9],cost[9];
7     for(i=0;i<9;i++)
8     {
9         a[i]=0;
10        char str[100];
11        char items[9][100]={"Sandisk 16 GB",
12        "Logitech Mouse",
13        "Pendrive 16 GB",
14        "Adidas",
15        "Nike",
16        "Leecooper",
17        "Mi Note 3",
18        "Nokia n3",
19        "Samsung s5"};
20        printf("Please Enter Your Name\n");
21        scanf("%s",str);
22        printf("Hello %s, Welcome to our Online Shopping.\n",str);
23        do{
24            //C is 1 by default
25            if(c==1){
26                printf("Enter\n1 - Computer Accessories\n2 - Shoes\n3 - Mobiles\nAny other number to exit\n");
27                scanf("%d",&choice);
28                switch(choice)
29                {
30                    case 1:
31                    {
32                        int accessoriesChoice;
33                        printf("Enter\n1 - Sandisk 16 GB - Rs.355\n2 - Logitech Mouse- Rs.500\n3 - Pendrive 16 GB - Rs.550\nAny other number to exit\n");
34                        scanf("%d",&accessoriesChoice);
```

Fig 2.2.1

```
34         scanf("%d",&accessoriesChoice);
35         cost[0]=355;
36         cost[1]=500;
37         cost[2]=550;
38         switch(accessoriesChoice)
39         {
40             case 1:
41             {
42                 int num;
43                 printf("You chose Sandisk 16GB with Rs.355.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
44                 scanf("%d",&num);
45                 if(num==1)
46                 {
47                     a[0]++;
48                     totalCost+=355;
49                 }
50                 printf("Your Cost in Cart is %d\n",totalCost);
51                 break;
52             }
53             case 2:
54             {
55                 int num;
56                 printf("You chose Logitech Mouse with Rs.500.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
57                 scanf("%d",&num);
58                 if(num==1)
59                 {
60                     a[1]++;
61                     totalCost+=500;
62                 }
63                 printf("Your Cost in Cart is %d\n",totalCost);
64                 break;
65             }
66             case 3:
67             {
```

Fig 2.2.2

```

68     int num;
69     printf("You chose Pendrive 16GB with Rs.550.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
70     scanf("%d",&num);
71     if(num==1)
72     {
73         a[2]++;
74         totalCost+=550;
75     }
76     printf("Your Cost in Cart is %d\n",totalCost);
77     break;
78 }
79 default:{
80     printf("Exit from Computer Accesories\n");
81     break;
82 }
83 }
84 break;
85 }
86 case 2:
87 {
88     int shoesChoice;
89     printf("Enter\n1 - Adidas - Rs.3550\n2 - Nike - Rs.5000\n3 - Leecooper - Rs.2800\nAny other number to exit\n");
90     scanf("%d",&shoesChoice);
91     cost[3]=3550;
92     cost[4]=5000;
93     cost[5]=2800;
94     switch(shoesChoice)
95     {
96     case 1:
97     {
98         int num;
99         printf("You chose Adidas Shoes for Rs.3550.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
100        scanf("%d",&num);

```

Fig 2.2.3

```

101        if(num==1)
102        {
103            a[3]++;
104            totalCost+=3550;
105        }
106        printf("Your Cost in Cart is %d\n",totalCost);
107        break;
108    }
109    case 2:
110    {
111        int num;
112        printf("You chose Nike Shoes for Rs.5000.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
113        scanf("%d",&num);
114        if(num==1)
115        {
116            a[4]++;
117            totalCost+=5000;
118        }
119        printf("Your Cost in Cart is %d\n",totalCost);
120        break;
121    }
122    case 3:
123    {
124        int num;
125        printf("You chose Leecooper Shoes for Rs.2800.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
126        scanf("%d",&num);
127        if(num==1)
128        {
129            a[5]++;
130            totalCost+=2800;
131        }
132        printf("Your Cost in Cart is %d\n",totalCost);
133        break;

```

Fig 2.2.4

```

134 |
135 | }
136 |     printf("Exit from Shoes Category\n");
137 |     break;
138 | }
139 | }
140 | break;
141 | }
142 | case 3:
143 | {
144 |     int mobileChoice;
145 |     printf("Enter\n1 - Mi Note 3 - Rs.11000\n2 - Nokia 3 - Rs.9866\n3 - Samsung S5 - Rs.12800\nAny other number to exit\n");
146 |     scanf("%d",&mobileChoice);
147 |     cost[6]=11000;
148 |     cost[7]=9866;
149 |     cost[8]=12800;
150 |     switch(mobileChoice)
151 |     {
152 |     case 1:
153 |     {
154 |         int num;
155 |         printf("You chose to buy Mi Note 3 for Rs.11000.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
156 |         scanf("%d",&num);
157 |         if(num==1)
158 |         {
159 |             a[6]++;
160 |             totalCost+=11000;
161 |         }
162 |         printf("Your Cost in Cart is %d\n",totalCost);
163 |         break;
164 |     }
165 |     case 2:
166 |     {

```

Fig 2.2.5

```

167 |
168 |     int num;
169 |     printf("You chose to buy Nokia 3 for Rs.9866.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
170 |     scanf("%d",&num);
171 |     if(num==1)
172 |     {
173 |         a[7]++;
174 |         totalCost+=9866;
175 |     }
176 |     printf("Your Cost in Cart is %d\n",totalCost);
177 |     break;
178 | }
179 | case 3:
180 | {
181 |     int num;
182 |     printf("You chose to buy Samsung for Rs.12800.Are you sure to buy.If 'Yes' Enter 1 else any number\n");
183 |     scanf("%d",&num);
184 |     if(num==1)
185 |     {
186 |         a[8]++;
187 |         totalCost+=12800;
188 |     }
189 |     printf("Your Cost in Cart is %d\n",totalCost);
190 |     break;
191 | }
192 | default:{
193 |     printf("Exit from Mobile Category\n");
194 |     break;
195 | }
196 | }
197 | break;
198 | default:
199 | {

```

Fig 2.2.6

[illegible]

Fig 2.2.7

```

232     {
233         if(a[i]!=0)
234         {
235             printf("%d\t%s\t%d\t\t\t\t\t\n",i,items[i],a[i],(cost[i]*a[i]));
236         }
237     }
238     printf("Total Cost\t\t\t\t\t\t\t\t\t\t\t\n",totalCost);
239     printf("If you wish to buy anything more Enter\n1 to Add Item\n2 to Delete Items \nAny other number to Exit\n");
240     scanf("%d",&c);
241 }
242 }while(c==1 || c==2);
243 printf("Your Final Cost is %d\n",totalCost);
244 printf("Thanks %s for Choosing Us and Visit us again.\n",str);
245 }

```

Fig 2.2.8

2.3 OUTPUT :

```
C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
Please Enter Your Name
Vaishnavi
Hello Vaishnavi, Welcome to our Online Shopping.
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
1
Enter
1 - Sandisk 16 GB - Rs.355
2 - Logitech Mouse- Rs.500
3 - Pendrive 16 GB - Rs.550
Any other number to exit
1
You chose Sandisk 16GB with Rs.355.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 355
Vaishnavi's cart


| Id | Items         | Quantity | Cost |
|----|---------------|----------|------|
| 0  | Sandisk 16 GB | 1        | 355  |


Total Cost
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
1
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
```

Fig 2.3.1

```
C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
Any other number to exit
2
Enter
1 - Adidas - Rs.3550
2 - Nike - Rs.5000
3 - Leecooper - Rs.2800
Any other number to exit
3
You chose Leecooper Shoes for Rs.2800.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 3155
Vaishnavi's cart


| Id | Items         | Quantity | Cost |
|----|---------------|----------|------|
| 0  | Sandisk 16 GB | 1        | 355  |
| 5  | Leecooper     | 1        | 2800 |


Total Cost
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
1
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
3
Enter
1 - Mi Note 3 - Rs.11000
2 - Nokia 3 - Rs.9866
3 - Samsung S5 - Rs.12800
Any other number to exit
```

Fig 2.3.2


```

C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
Any other number to exit
3
You chose to buy Samsung for Rs.12800.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 15955
Vaishnavi's cart
Id      Items                Quantity      Cost
0       Sandisk 16 GB          1             355
5       Leecooper               1            2800
8       Samsung s5              1           12800
Total Cost                                     15955
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
2
Enter id to delete item
0
Revised Items
Id      Items                Quantity      Cost
5       Leecooper               1            2800
8       Samsung s5              1           12800
Total Cost                                     15600
If you wish to buy anything more Enter
1 to Add Item
2 to Delete Items
Any other number to Exit
1
Enter
1 - Computer Accessories
2 - Shoes
3 - Mobiles

```

Fig 2.3.3

```

C:\Users\vaish\Desktop\Dyanahitha Project\OnlineShopping\OnlineShopping.exe
1 - Computer Accessories
2 - Shoes
3 - Mobiles
Any other number to exit
1
Enter
1 - Sandisk 16 GB - Rs.355
2 - Logitech Mouse- Rs.500
3 - Pendrive 16 GB - Rs.550
Any other number to exit
2
You chose Logitech Mouse with Rs.500.Are you sure to buy.If 'Yes' Enter 1 else any number
1
Your Cost in Cart is 16100
Vaishnavi's cart
Id      Items                Quantity      Cost
1       Logitech Mouse          1             500
5       Leecooper               1            2800
8       Samsung s5              1           12800
Total Cost                                     16100
If you wish to buy anything more Enter
1. to Add Item
2. to Delete Items
Any other number to Exit
5
Your Final Cost is 16100
Thanks Vaishnavi for Choosing Us and Visit us again.
-----
Process exited after 38.28 seconds with return value 53
Press any key to continue . . .

```

Fig 2.3.4

3.PROBLEM 2 : MORSE CODE

This Project aims to convert the given data into Morse Code.

3.1 CONCEPTS USED :

1. **While loop** : A while loop is a control flow statement that allows code to be executed repeatedly based on a given Boolean condition. The while loop can be thought of as a repeating if statement.

```
Syntax : while{  
            Statements;  
        }
```

2. **gets()** : The C library function char gets() reads a line from stdin and stores it.

```
Syntax : gets(name);
```

3. **Logical Operator AND (&&)** : The logical AND operator (&&) returns the boolean value TRUE if both operands are TRUE and returns FALSE otherwise. ... The first operand is completely evaluated and all side effects are completed before continuing evaluation of the logical AND expression.

```
Syntax : if (a&&b){  
            Printf("Logical And");  
        }
```

4. **If Statement** : The if-else statement in C is used to perform the operations based on some specific condition. The operations specified in if block are executed if and only if the given condition is true.

```
Syntax : if {  
            Statements;  
        }  
        else{  
            Statements;  
        }
```

EXPECTED OUTPUT :

```
C:\Users\vaish\Desktop\Dyanahitha Project\MorseCode\MorseCode.exe
Enter a sentence
Vaishnavi
...- .- . . . . . - . - . . .
-----
Process exited after 3.482 seconds with return value 10
Press any key to continue . . .
```

Fig 3.1.1

3.2 CODING :

[illegible]

Fig 3.2.1

3.3 OUTPUT :

```
C:\Users\vaish\Desktop\Dyanahitha Project\MorseCode\MorseCode.exe
Enter a sentence
Vaishnavi
.....
-----
Process exited after 3.482 seconds with return value 10
Press any key to continue . . .
```

Fig 3.3.1

4.PROBLEM 3 : CALCULATE DAY FROM GIVEN DAY

This Project aims to calculate Day from given Date.

4.1 CONCEPTS USED :

1. Pointers : A pointer is a variable that stores the address of another variable. Unlike other variables that hold values of a certain type, pointer holds the address of a variable.

Syntax : int *ptr;

2. Logical Operator OR (||) : The logical-OR operator performs an inclusive-OR operation on its operands. The result is 0 if both operands have 0 values. If either operand has a nonzero value, the result is 1. If the first operand of a logical-OR operation has a nonzero value, the second operand is not evaluated.

Syntax : if(a || b){
Statements;
}

3. For loop : A For loop is a control flow statement for specifying iteration, which allows code to be executed repeatedly.

Syntax : for(initialization,condition,increment)
{
Statements;
}

4. Break statement : The break is a keyword in C which is used to bring the program control out of the loop. The break statement is used inside loops or switch statement. The break statement breaks the loop one by one.

Syntax : break;

5. Strcmp (String Comparison) : The strcmp() function is used to compare two strings two strings str1 and str2 . If two strings are same then strcmp() returns 0 , otherwise, it returns a non-zero value. This function compares strings character by character using ASCII value of the characters.

Syntax : strcmp(str1,str2);

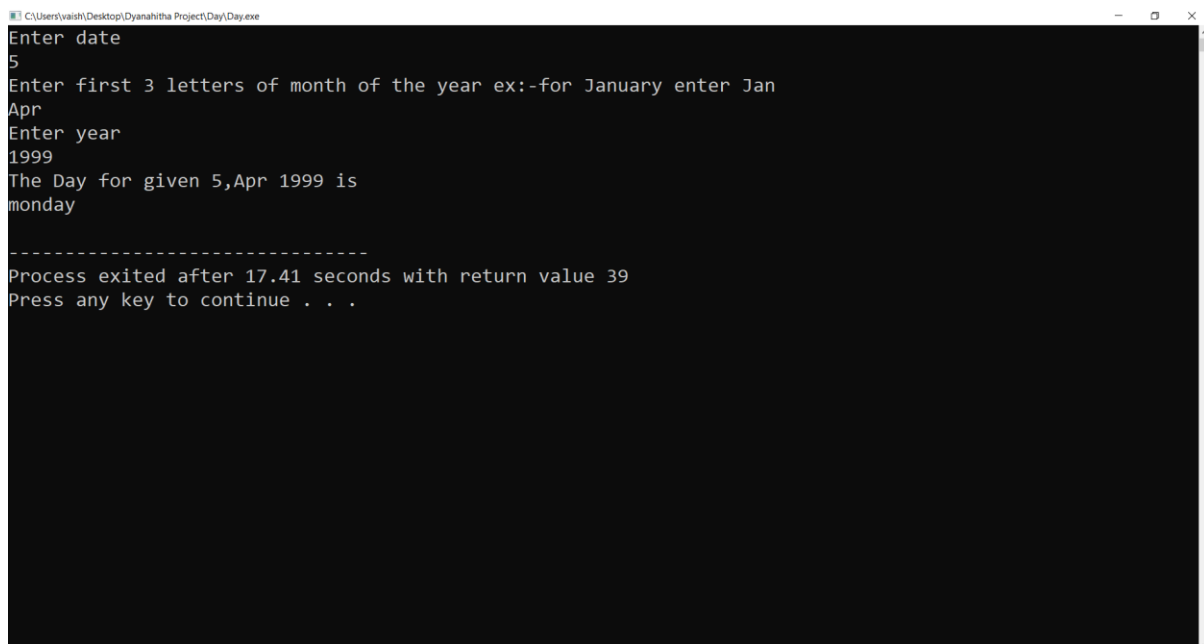
6. If – else Statement : The if-else statement in C is used to perform the operations based on some specific condition. The operations specified in if block are executed if and only if the given condition is true.

```
Syntax : if {  
    Statements;  
}  
else{  
    Statements;  
}
```

7. Arrays : An array is a variable that can store multiple values. For example, if you want to store 100 integers, you can create an array for it.

```
Syntax : int array[100];
```

EXPECTED OUTPUT :

A screenshot of a Windows command prompt window with a black background and white text. The window title bar shows the file path 'C:\Users\vaish\Desktop\Dyanahitha Project\Day\Day.exe'. The program prompts the user to 'Enter date', where '5' is entered. It then prompts 'Enter first 3 letters of month of the year ex:-for January enter Jan', where 'Apr' is entered. Next, it prompts 'Enter year', where '1999' is entered. The program then outputs 'The Day for given 5,Apr 1999 is' followed by 'monday' on the next line. A separator line of dashes follows. The final output lines are 'Process exited after 17.41 seconds with return value 39' and 'Press any key to continue . . .'.

```
C:\Users\vaish\Desktop\Dyanahitha Project\Day\Day.exe  
Enter date  
5  
Enter first 3 letters of month of the year ex:-for January enter Jan  
Apr  
Enter year  
1999  
The Day for given 5,Apr 1999 is  
monday  
-----  
Process exited after 17.41 seconds with return value 39  
Press any key to continue . . .
```

Fig 4.1.1

4.2 CODING :

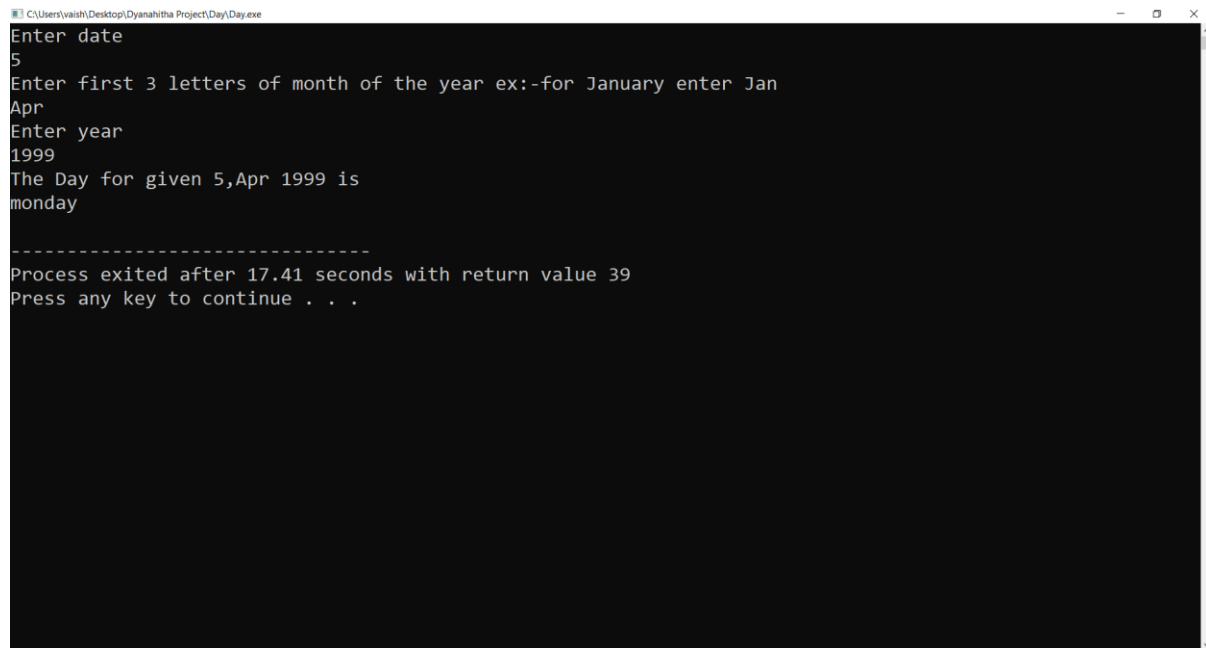
```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 char* months[] = {"Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec","Jan","Feb"};
5 char* days[] = {"sunday","monday","tuesday","wednesday","thursday","friday","saturday"};
6 int main()
7 {
8     //k---day of the month as 29
9     //m-month number as March=1 ..Feb=12,so here it is 11
10    //D--Last two digits of year from above it is 64
11    //C--first two digits of year from above it is 20
12    int k,m,D,C,year,i,f,finalday,flag=0;
13    char str[3];
14    printf("Enter date \n");
15    scanf("%d",&k);
16    if(k<=0||k>31)
17    {
18        printf("Invalid Date\n");
19        exit(0);
20    }
21    printf("Enter first 3 letters of month of the year ex:-for January enter Jan\n");
22    scanf("%s",str);
23    for(i=0; i<12; i++)
24    {
25        if(!strcmp(str,months[i]))
26        {
27            m=i+1;
28            flag=1;
```

Fig 4.2.1

```
27         m=i+1;
28         flag=1;
29         break;
30     }
31 }
32 if(flag==0){
33     printf("Invalid Month\n");
34     exit(0);
35 }
36 printf("Enter year\n");
37 scanf("%d",&year);
38 if(m==11||m==12)
39 {
40     year=year-1;
41 }
42 D=year%100;
43 C=year/100;
44 f = (k+(((13*m)-1)/5)+D+(D/4)+(C/4)-(2*C)); //Using Zellers Rule f = k + [(13*m-1)/5] + D + [D/4] + [C/4] - 2*C
45 if(f>=0){
46     finalday=f%7;
47 }
48 else{
49     finalday=((f%7)+7)%7;
50 }
51 printf("The Day for given %d,%s %d is\n%s\n",k,str,year,days[finalday]);
52 }
53
54
```

Fig 4.2.2

4.3 OUTPUT :



```
C:\Users\vaish\Desktop\Dyanahitha Project\Day\Day.exe
Enter date
5
Enter first 3 letters of month of the year ex:-for January enter Jan
Apr
Enter year
1999
The Day for given 5,Apr 1999 is
monday

-----
Process exited after 17.41 seconds with return value 39
Press any key to continue . . .
```

Fig 4.3.1

5. PROBLEM 4 : GUESS THE TOSS OF A COIN

This Program is based on Heads or Tails that lets the user guess whether the flip of a coin results in heads or tails. The Program randomly generates an integer 0 or 1 which represents head or tail. The Program prompts the user to guess and reports whether the guess is correct or incorrect.

5.1 CONCEPTS USED :

1. srand() : The srand() function sets the starting point for producing a series of pseudo-random integers. If srand() is not called, the rand() seed is set as if srand(1) were called at program start. Any other value for seed sets the generator to a different starting point.

Syntax : void srand(unsigned rand)

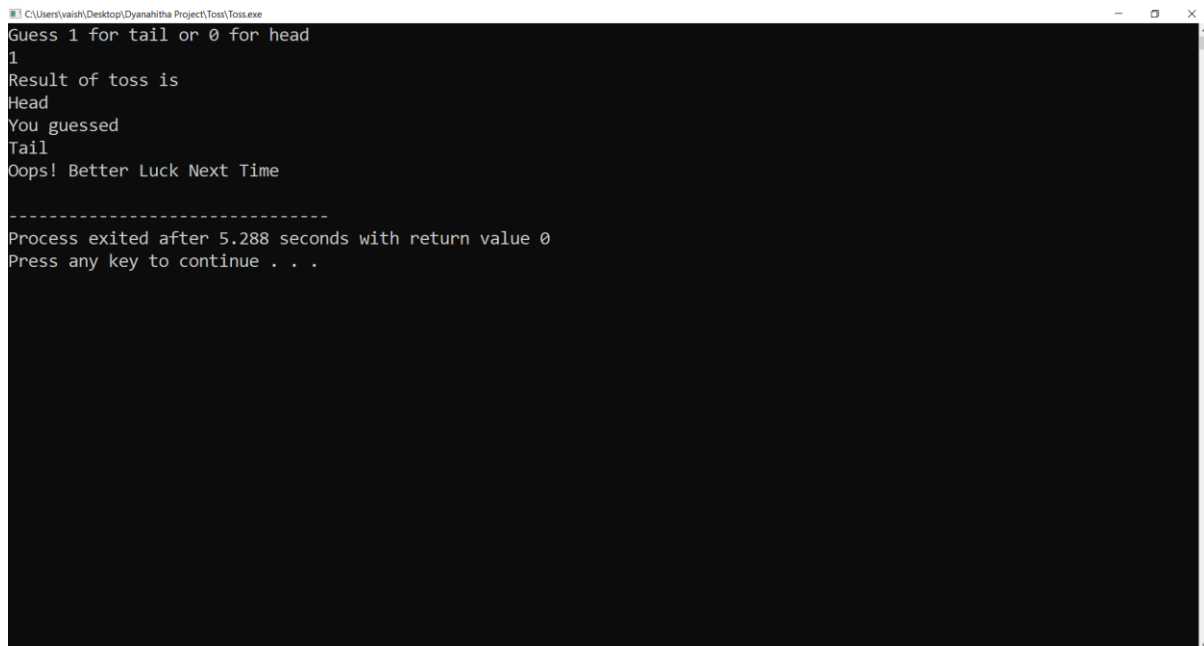
2. rand() : rand() function is used in C to generate random numbers. If we generate a sequence of random number with rand() function, it will create the same sequence again and again every time program runs. Say if we are generating 5 random numbers in C with the help of rand() in a loop, then every time we compile and run the program our output must be the same sequence of numbers.

Syntax : int rand(void)

3. If – else statement : The if-else statement in C is used to perform the operations based on some specific condition. The operations specified in if block are executed if and only if the given condition is true.

Syntax : if {
 Statements;
}
else{
 Statements;
}

EXPECTED OUTPUT :



```
C:\Users\vaish\Desktop\Dynamic\Project\Toss\Toss.exe
Guess 1 for tail or 0 for head
1
Result of toss is
Head
You guessed
Tail
Oops! Better Luck Next Time

-----
Process exited after 5.288 seconds with return value 0
Press any key to continue . . .
```

Fig 5.1.1

5.2 CODING :

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #include<time.h>
4 int main ()
5 {
6     int number,guess;
7     srand ( time(NULL) );
8     //To get numbers between 0 and 1
9     number = rand() % 2;
10    printf("Guess 1 for tail or 0 for head\n");
11    scanf("%d",&guess);
12    printf("Result of toss is\n");
13    if(number==0)
14    {
15        printf("Head\n");
16    }
17    else
18    {
19        printf("Tail\n");
20    }
21    printf("You guessed\n");
22    if(guess==0)
23    {
24        printf("Head\n");
```

Fig 5.2.1

```

17 | else
18 | {
19 |     printf("Tail\n");
20 | }
21 | printf("You guessed\n");
22 | if(guess==0)
23 | {
24 |     printf("Head\n");
25 | }
26 | else
27 | {
28 |     printf("Tail\n");
29 | }
30 | if(number==guess)
31 | {
32 |     printf("Hurray! You won the toss\n");
33 | }
34 | else
35 | {
36 |     printf("Oops! Better Luck Next Time\n");
37 | }
38 | }
39 |

```

Fig 5.2.2

5.3 OUTPUT :

```

C:\Users\varish\Desktop\Dyanahitha Project\Toss\Toss.exe
Guess 1 for tail or 0 for head
1
Result of toss is
Head
You guessed
Tail
Oops! Better Luck Next Time

-----
Process exited after 5.288 seconds with return value 0
Press any key to continue . . .

```

Fig 5.3.1

6. PROBLEM 5 : ATM MACHINE

This problem enables the customer to Deposit amount to the bank account. Also the customer can withdraw amount and also can check balance in the Account.

6.1 CONCEPTS USED :

1. while loop : A while loop is a control flow statement that allows code to be executed repeatedly based on a given Boolean condition. The while loop can be thought of as a repeating if statement.

```
Syntax : while{  
    Statements;  
}
```

2. Do- while loop : A do while loop is similar to while loop with one exception that it executes the statements inside the body of do-while before checking the condition.

```
Syntax : do{  
    Statements;  
}while(condition);
```

3. Switch Statement : A Switch Statement allows a variable to be tested for equality against a list of values. Each value is called a case, and the variable being switched on is checked for each switch case.

```
Syntax : switch(){  
    Case 1 :  
        break;  
    Case n :  
        break;  
    default :  
        break; }
```

4. Break statement : The break is a keyword in C which is used to bring the program control out of the loop. The break statement is used inside loops or switch statement. The break statement breaks the loop one by one.

```
Syntax : break;
```

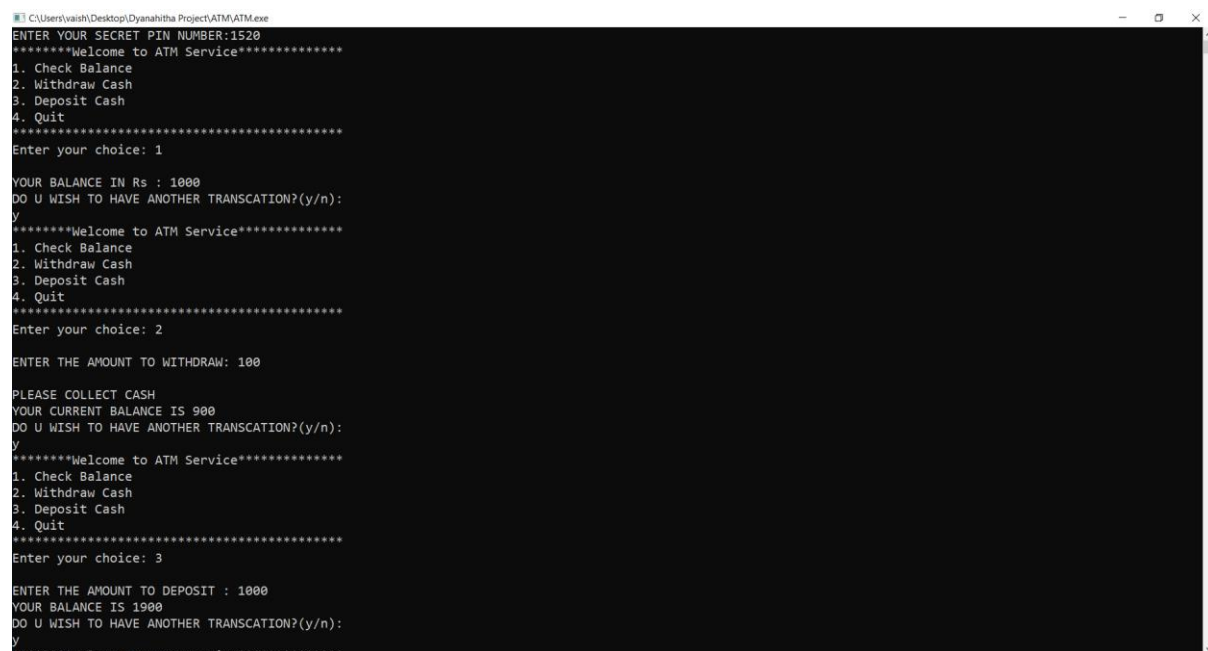
5. If statement : The if-else statement in C is used to perform the operations based on some specific condition. The operations specified in if block are executed if and only if the given condition is true.

```
Syntax : if {  
    Statements;  
}  
else{  
    Statements;  
}
```

6. Logical Operator OR (||) : The logical-OR operator performs an inclusive-OR operation on its operands. The result is 0 if both operands have 0 values. If either operand has a nonzero value, the result is 1. If the first operand of a logical-OR operation has a nonzero value, the second operand is not evaluated.

```
Syntax : if(a || b){  
    Statements;  
}
```

EXPECTED OUTPUT :



```
C:\Users\vaish\Desktop\Dyanahitha Project\ATM\ATM.exe  
ENTER YOUR SECRET PIN NUMBER:1520  
*****Welcome to ATM Service*****  
1. Check Balance  
2. Withdraw Cash  
3. Deposit Cash  
4. Quit  
Enter your choice: 1  
  
YOUR BALANCE IN Rs : 1000  
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):  
y  
*****Welcome to ATM Service*****  
1. Check Balance  
2. Withdraw Cash  
3. Deposit Cash  
4. Quit  
Enter your choice: 2  
  
ENTER THE AMOUNT TO WITHDRAW: 100  
  
PLEASE COLLECT CASH  
YOUR CURRENT BALANCE IS 900  
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):  
y  
*****Welcome to ATM Service*****  
1. Check Balance  
2. Withdraw Cash  
3. Deposit Cash  
4. Quit  
Enter your choice: 3  
  
ENTER THE AMOUNT TO DEPOSIT : 1000  
YOUR BALANCE IS 1900  
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):  
y  
*****Welcome to ATM Service*****
```

Fig 6.1.1

```
C:\Users\vaish\Desktop\Dyanahitha Project\ATM\ATM.exe
PLEASE COLLECT CASH
YOUR CURRENT BALANCE IS 900
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 3

ENTER THE AMOUNT TO DEPOSIT : 1000
YOUR BALANCE IS 1900
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 4

THANK U FOR USING ATM
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
n

THANKS FOR USING OUT ATM SERVICE
-----
Process exited after 33.58 seconds with return value 33
Press any key to continue . . .
```

Fig 6.1.2

6.2 CODING :

```
1 #include <stdio.h>
2 unsigned long amount=1000, deposit, withdraw;
3 int choice, pin, k;
4 char transaction = 'y';
5 void main()
6 {
7     while (pin != 1520)
8     {
9         printf("ENTER YOUR SECRET PIN NUMBER:");
10        scanf("%d", &pin);
11        if (pin != 1520)
12            printf("PLEASE ENTER VALID PASSWORD\n");
13    }
14    do
15    {
16        printf("*****Welcome to ATM Service*****\n");
17        printf("1. Check Balance\n");
18        printf("2. Withdraw Cash\n");
19        printf("3. Deposit Cash\n");
20        printf("4. Quit\n");
21        printf("*****\n");
22        printf("Enter your choice: ");
23        scanf("%d", &choice);
24        switch (choice)
```

Fig 6.2.1

```

25 {
26 case 1:
27     printf("\nYOUR BALANCE IN Rs : %lu ", amount);
28     break;
29 case 2:
30     printf("\nENTER THE AMOUNT TO WITHDRAW: ");
31     scanf("%lu", &withdraw);
32     if (withdraw % 100 != 0)
33     {
34         printf("\nPLEASE ENTER THE AMOUNT IN MULTIPLES OF 100");
35     }
36     else if (withdraw > (amount - 500))
37     {
38         printf("\nINSUFFICIENT BALANCE");
39     }
40     else
41     {
42         amount = amount - withdraw;
43         printf("\nPLEASE COLLECT CASH");
44         printf("\nYOUR CURRENT BALANCE IS %lu", amount);
45     }
46     break;
47 case 3:
48     printf("\nENTER THE AMOUNT TO DEPOSIT : ");

```

Fig 6.2.2

```

45     }
46     break;
47 case 3:
48     printf("\nENTER THE AMOUNT TO DEPOSIT : ");
49     scanf("%lu", &deposit);
50     amount = amount + deposit;
51     printf("YOUR BALANCE IS %lu", amount);
52     break;
53 case 4:
54     printf("\nTHANK U FOR USING ATM");
55     break;
56 default:
57     printf("\nINVALID CHOICE");
58 }
59 printf("\nDO U WISH TO HAVE ANOTHER TRANSCATION?(y/n): \n");
60 fflush(stdin);
61 scanf("%c", &transaction);
62 if (transaction == 'n' || transaction == 'N')
63     k = 1;
64 }
65 while (k==0);
66 printf("\nTHANKS FOR USING OUT ATM SERVICE");
67 }

```

Fig 6.2.3

6.3 OUTPUT :

```
C:\Users\vaish\Desktop\Dyanahitha Project\ATM\ATM.exe
ENTER YOUR SECRET PIN NUMBER:1520
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 1

YOUR BALANCE IN Rs : 1000
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 2

ENTER THE AMOUNT TO WITHDRAW: 100

PLEASE COLLECT CASH
YOUR CURRENT BALANCE IS 900
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 3

ENTER THE AMOUNT TO DEPOSIT : 1000
YOUR BALANCE IS 1900
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
```

Fig 6.3.1

```
C:\Users\vaish\Desktop\Dyanahitha Project\ATM\ATM.exe

PLEASE COLLECT CASH
YOUR CURRENT BALANCE IS 900
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 3

ENTER THE AMOUNT TO DEPOSIT : 1000
YOUR BALANCE IS 1900
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
y
*****Welcome to ATM Service*****
1. Check Balance
2. Withdraw Cash
3. Deposit Cash
4. Quit
*****
Enter your choice: 4

THANK U FOR USING ATM
DO U WISH TO HAVE ANOTHER TRANSCATION?(y/n):
n

THANKS FOR USING OUT ATM SERVICE
-----
Process exited after 33.58 seconds with return value 33
Press any key to continue . . .

*****Welcome to ATM Service*****
```

Fig 6.3.2

7. SOFTWARE REQUIREMENTS

7.1 Hardware Requirements : This Project can be executed in any system or an android phone without prior to any platform. We can use any Online Compiler and Interpreter.

7.2 Software Requirements :

There are two ways to execute these projects

1. Online Compiler
2. Software for execution (Dev C++,CodeBlocks..)

Online compilers require only Internet Connection. We have many free Compilers with which we can code.

Software for execution need to be installed based on the user's system specification. These help us to completely execute the project. These softwares are based on the platforms.

REFERENCES

1. <http://www.cprograms4future.com/p/online-shopping.html>
2. <http://www.cprograms4future.com/p/generate-morse-code.html>
3. <http://www.cprograms4future.com/p/guess-day-from-date.html>
4. <http://www.cprograms4future.com/p/toss-of-coin.html>
5. <http://www.cprograms4future.com/p/atm-machine.html>