Laboratory Report

LABORATORY 4 – REPORT

**Student name: Adeyemo Sobowale**

## Student ID: 18359056

**Programme: ECE**

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| *I hereby declare that the attached submission is all my own work, that it has not previously been submitted for assessment, and that I have not knowingly allowed it to be used by another student. I understand that deceiving or attempting to deceive examiners by passing off the work of another as one's own is not permitted. I also understand that using another's student’s work or knowingly allowing another student to use my work is against the University regulations and that doing so will result in loss of marks and possible disciplinary proceedings.* | |
| **Signed:** **Adeyemo Sobowale** | **Date:** **28 February 2019** |

**Problem:**

Task 1: write a program that reads the number of clients that buy tickets and the amount of tickets bought by the clients, this information should be printed in a table and lastly the average amount of tickets should be found.

Task 2: a pattern is printed using the ‘for’ to create the loop.

Task 3: a program is developed that encoded a series of line characters into Caesar cipher. It should be made that the key; the different in the letter of the alphabet should be made changeable.

**Plan:**

Task 1:

Create the file on textpad

Identifying and using the correct function

Correctly save and name the file

Using the Borland C++ Complier

Compile the file

Executing the file

Task 2:

Create the file on textpad

Counting the spaces to create the pattern on the loop

Correctly save and name the file

Using the Borland C++ Complier

Compile the file

Executing the file

Task 3:

Create the file on textpad

Spacing my initials correctly to get the desired shapes

Correctly save and name the file

Using the Borland C++ Complier

Compile the file

Executing the file

**Development:**

Task 1: the first task to create a sports table using the format given in the assignment. The int command was used for the number of clients. And the float declaration was used for the average and total. Printf was used to print the information and scanf was used to take the values and input them into the table. The equation for the total is made so that each repetition of the ticket is and to the next one i.e Tickets 1+ Tickets 2. /T is used to print the information in a table as required. The average is found by dividing the total by the clients and I limited this to two decimal places %.2f. Lastly, I printed a goodbye message.

Task 2: the int command was used to make x and y variables. The first loop was used to create the shape of the rectangle at the start. It is 11 by 5 so x<5 and y<11. Printf is used to print the stars in each of the spaces by 1 using ++. A printf \n function is used to create a new line. Next the diagonal going down is made by making x=10 and the x value to decrease by 1 --. For the y value it =0 and it is less than x going at a rate of ++. The last section of the pattern is made by making x=0 and x<11. Then y=0 and y<x at a rate of ++.

Task 3: the first thing I did was creating a loop that allowed for the repetition of the letter in the alphabet after you past z. Next, I create a loop that allowed for blanks to be made in the encryption. Next, I create the code for the statements within the program, using printf. Scanf was used to be able change the value of the key. Lastly the message which indicates the code is printed. This statement caesar(code,key); allows the program to know that you are looking for the encrypted version of the text

**Testing**:

main.c:10:89: error: ‘n’ undeclared (first use in this function)

printf(" Welcome to my Caesar cipher please enter the plain text you want to encrypt."/n)

**Conclusion:** I learnt the /t command and the use of ++ and – within a loop. I also learnt that you can put a condition on the scanf command and lastly how to create a Caesar cipher.

**Code:**

Task 1:

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

int main(void)

{

int clients,i;

float average,total;

printf("Welcome to my soccer ticket information table.\n");

printf("How many clients bought tickets.\n");

scanf("%d",&clients);

int tickets[clients];

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

printf("Please enter the number of tickets person %d bought:\n",i+1);

scanf("%d",&tickets[i]);

total = total+tickets[i];

}

printf("CLIENT NO.\t NO.TICKETS\n");

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

printf(" %d\t\t",i+1);

printf(" %d\n",tickets[i]);

}

average = total/clients;

printf("The average number of tickets bought is: %.2f\n",average);

printf("Thank you for using my ticket information table.\n");

return(EXIT\_SUCCESS);

}

Output:

Welcome to my soccer ticket information table.

How many clients bought tickets.

5

Please enter the number of tickets person 1 bought:

3

Please enter the number of tickets person 2 bought:

6

Please enter the number of tickets person 3 bought:

9

Please enter the number of tickets person 4 bought:

12

Please enter the number of tickets person 5 bought:

15

CLIENT NO. NO.TICKETS

1 3

2 6

3 9

4 12

5 15

The average number of tickets bought is: 9.00

Thank you for using my ticket information table.

Task 2:

#include<stdio.h>

int main(){

int x,y;

for(x=0;x<5;x++){

for(y=0;y<11;y++){

printf("\*");

}

printf("\n");

}

printf("\n");

for(x=10;x>0;x--){

for(y=0;y<x;y++){

printf("\*");

}

printf("\n");

}

for(x=0;x<11;x++){

for(y=0;y<x;y++){

printf("\*");

}

printf("\n");

}

return(0);

}

Output:

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Task 3:

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

void caesar(char\* input, int key){

int i;

if(key>26)

key = key % 26;

for(i=0;i<strlen(input);i++){

if((input[i]+key>=65) && (input[i]+key<=90)||(input[i]+key>=97) && (input[i]+key<=122)){

input[i]=input[i]+key;

}

else if(input[i]==' '||input[i]=='\n'){

input[i]=input[i];

}

else{

input[i]=input[i]+(key-26);

}

}

}

int main(){

char code[100];

int key = 15;

printf("Welcome to my Caesar Ciper program \n");

printf("Please enter the key for encyption( must be greater than 26): \n");

scanf("%d",&key);

printf("Please enter the text you want to be encrypted finishing with a ?: \n");

scanf("%[^?]",code);

caesar(code,key);

printf("Code is: %s\n", code);

return(0);

}

Output:

Welcome to my Caesar Ciper program

Please enter the key for encyption( must be greater than 26):

700

Please enter the text you want to be encrypted finishing with a ?:

Hello World?

Code is:

Fcjjm ompjb