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SECTION: 23

GROUP: "B"

SEMESTER: 1ST SEMESTER

PRACTICAL NUMBER : 4.1

TOPIC OF THE EXPERIMENT :

A salesman has n things to sale. The cost price of all n things is different out of which p things he is selling on m% profit and n-p things he is selling to x% loss. Find his net profit or loss.

AIM OF THE EXPERIMENT :

Learn how to use looping constructs in C.

FLOWCHART / ALGORITHM :

(i)Start the program.

(ii)Declaration of variables n,p,i in integer datatype for number of available items for sale, price of each item and for loop termination respectively.

(iii)Declaration of variables m,x,profit,loss,total,item;

in float datatype for profit percentage,loss percentage, profit, loss, total amount and price of each item respectively.

(iv)Print "Enter no of available item for sale :

(v) Accept the input of number of items from the user.

(vi) Print "Enter price of each item"

(vii) For loop is used to input the price of each item.

(viii) Print the number of items.

(ix) Accept the input of price of items from the user.

(x) Print " Enter the no. of items sold in the profit : "

(xi) Accept the input of no. of items sold in profit by the user.

(xii)Print "Enter the percentage of profit : "

(xiii) Accept the input of percentage of profit from the user.

(xiv) Print "Enter the percentage of loss in remaining item : "

(xv) Accept the input of percentage of loss from the user

(xvi) For loop is used to calculate profit.

(xvi) Calculate the profit by using the formula :

(profit%* price of item)/100

(xvii) For loop is used to calculate loss.

(xviii) Calculate the loss by using the formula :

(loss%*price of item)/100

(xix) Calculate total by using the formula:

total=profit-loss

(xx) Check the condition whether salesman had profit or loss.

(xxi) If (total>0) print "Salesman get Rs. %.2f profit" and print the value of total.

(xxii) If (total<0) print "Salesman get Rs. %.2f loss" and print the value of total*-1.

(xxiii) Otherwise print "Salesman got neither profit nor loss".

(xxiv) End the program by returning an integer like 0.

PROGRAM CODE :

```
//creating a header file
#include <stdio.h>
//function which returns integer value
int main()
{
//declaration of variables in integer datatype
int n,p,i;
//declaration of variables in float datatype
```

```
float m,x,profit,loss,total,item;
//print the message
printf("Enter no of available item for sale : ");
//accept the input of no. of available items from the user
scanf("%d", &n);
//print the message
printf("\nEnter price of each item\n");
//to input the price of each item
for(i=0;i<n;i+1)
{
//print the message
printf("%d : ",i++);
//accept the input of priceof item from the user
scanf("%f",&item);
}
//print the message
printf("\nEnter the no of items sold in the profit : ");
//accept the input of no of items sold in profit
scanf("%d",&p);
```

```
//print the message
printf("Enter the percentage of profit : ");
//accept the input of percentage of profit from the user
scanf("%f",&m);
//print the message
printf("\nEnter the percentage of loss in remaining item : ");
//accept the input of percentage of loss from the user
scanf("%f",&x);
//to calculate the profit
for(i=0;i<p;i++)
{
//calculate the profit by using the formula: (profit%*price)/100
profit+=(m*item)/100;
//to calculate the loss
for(i=p;i<n;i++)
{
//calculate the loss by using the formula: (loss%*price)/100
loss+=(x*item)/100;
```

```
}
//calculate the total
total=profit-loss;
//check the condition whether salesman have profit or loss and print the message
if(total>0)
printf("Salesman get Rs. %.2f profit",total);
else if (total<0)
 printf("Salesman get Rs. %.2f loss",total*-1);
 else
printf("salesman got neither profit nor loss");
//returns an integer value
return 0;
}
}
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION :

(Kindly jot down the compile time errors encountered)

No Errors.

PROGRAM'S EXPLAINATION (IN BRIEF):

In this program we have to calculate the net profit or loss a salesman had on selling the n number of items in which p number of items were sold on m% profit and rest items were sold on x% loss. All the inputs are accepted from the user.

OUTPUT:

PRACTICAL NUMBER : 4.2

TOPIC OF THE EXPERIMENT :

Find m greatest 6-digit and n smallest 7-digit numbers which are divisible by number p. Print these numbers on the screen.

AIM OF THE EXPERIMENT :

Learn how to use looping constructs using C.

FLOWCHART / ALGORITHMS :

1. Start the program.
2. Declaration of variables p,i in integer datatype to enter the number and for loop execution.
3. Print "Enter no : "
4. Accept the input of number from the user.
5. Check the condition whether number is greater than 999999 or not and print the message according to it and if it is less than or equal to 999999 then terminate a loop.
6. If the greatest 6 digit number and smallest 7 digit number are divisible by the number entered by user then print the message according to it.
7. Loop will terminate and resume to next statement.
8. End the program.

PROGRAM CODE :

```
//creating a header file
#include <stdio.h>
```

```
//function which returns integer value
int main()
{
//declaration of variables in integer datatype
int p,i;
//print the message
printf("Enter no : ");
//accept the input of number from the user
scanf("%d",&p);
//check the condition
if(p>999999)
//print the message
printf("Not possible");
else
//loop will terminate
for(i=999999;;i--)
{
//check the condition whether the number is divisible or not and print the message
if(i%p==0)
```

```
{
printf("%d is 6-digit greatest no divisible by %d\n",i,p);
printf("%d is 7-digit smallest no divisible by %d\n",i+p,p);
//loop will terminate and resume to next statement
break;
}
}
//returns an integer value
return 0;
}
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION :

No Error.

PROGRAM'S EXPLAINATION (IN BRIEF) :

In this program firstly we have to enter a number from the user and then a for loop will terminate if the number is less than 999999 and by using the if else we have to check whether the number is divisible by 6 – digit greatest and 7 – digit smallest number or not and print the message according to it.

OUTPUT :

PRACTICAL NUMBER : 4.3

TOPIC OF THE EXPERIMENT :

There are n customer of bank who took loan of different amounts (Entered by User) and for different time periods but same rate of interest. The interest is compounded annually find the total interest earned by bank from all n customers.

AIM OF THE EXPERIMENT :

Learn how to use looping constructs using C.

FLOWCHART / ALGORITHM :

1.Start the program.

2. Declaration of variables i,n in integer datatype for number of customers.

3. Print "Enter the number of customers:"

4. Accept the input of number of customers from the user.

5. Declaration of variables p,t,r,interest in float datatype for principal amount , time period , rate of interest and interest earned by bank respectively.

6. Print "Enter annual rate of interest:"

7. Accept the input of rate of interest from the user.

8. Print “Enter customer data:"

9. For loop is executed here to enter the number of customers.

10. Print the number of customers.

11. Print “Principal amount :”.

12. Accept the input of principal amount from the user.

13. Print “Time Period :”.

14. Accept the input of time period from the user.

15. Calculate the interest earned by loop execution and by using the formula : interest = principal amount *(pow((1+(rate/100))),timeperiod)-1

16. Print "Total interest earned by bank:” and the value of interest earned.

17. End the program by returning an integer value.

PROGRAM CODE :

```
//creating a header file
#include<stdio.h>
//function to perform mathematical operations
#include<math.h>
//function which returns integer value
int main()
{
//declaration of variables in integer datatype
   int n,i;
//print the message
   printf("Enter the number of customers:");
//accept the input of number of customers from the user
   scanf("%d",&n);
//declaration of variables in float datatype
   float p,t,r,interest;
//print the message
   printf("Enter annual rate of interest:");
//accept the input of rate of interest from the user
   scanf("%f",&r);
```

```
//print the message
   printf("\nEnter customer data:");
//loop to enter the number of customers
   for(i=0;i<n;i++)
   {
//print the number of customers
       printf("\nCustomer %d",i+1);
//print the message
       printf("\nPrincipal amount:");
//accept the input of principal amount from the user
       scanf("%f",&p);
//print the message
       printf("Time Period:");
//accept the input of time period from the user
       scanf("%f",&t);
       }
//loop to calculate the interest earned by bank
       for(i=0;i<n;i++)
//calculate the interest by using the formula : interest =
principal amount *(pow((1+(rate/100))),timeperiod)-1
```

```
        interest+= p*(pow((1+(r/(100))),t)-1);
//print the message and value of interest earned
        printf("Total interest earned by bank:%.2f",interest);
//return an integer value
        return 0;
    }
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION

No error.

PROGRAM'S EXPLAINATION (IN BRIEF) :

In this program we have to take the input of number of customers , rate of interest, time period ,principal amount from the user and calculate the interest earned by the bank from the customer.

OUTPUT :

PRACTICAL NUMBER : 4.4

TOPIC OF THE EXPERIMENT :

On reaching the railway station, you find that the train you wanted to catch is just to start and there is hardly any time for purchasing the ticket. The same situation faced by many people in our country. You have to do data analysis task for which you will record responses from N people and then print your report accordingly. User enter option a for “Rush to train to catch it and inform T.T at next stop, b for” Catch the train and perform journey without ticket”, c for “purchase the ticket first otherwise wait for next train”, and d for “Miss the train and take ticket for next train “.On the basis of responses print in your report about the habit of our countrymen. If responses of any two options are equal then print it in either or form. If more than two responses are

equal or having difference <=1 then print no conclusion drawn.

AIM OF THE EXPERIMENT :

Learn how to use looping construct in C.

FLOWCHART / ALGORITHM :

1. Start the program.
2. Declarartion of variables in integer datatype.
3. Print "Hello Sir/Ma'am This survey is regarding the common issue we all face, Many a times we get late reaching the railway station And face a dilemma deciding whether to get ticket first or rush to train So, below given are some options please fill most preferable".
4. Declaration of variables in character datatype and print the message according to it.
5. Accept the input from the user using switch case.
6. Loop will be executed .
7. Check the condition using if else and count the no. of people.
8. Print the message.
9. End the program.

PROGRAM CODE :

```
 #include<stdio.h>

int main()

{

int n, i=0,max=0,counter=0,l[2],m=0;

int frequency[4]={0,0,0,0};

printf("Hello Sir/Ma'am\n This survey is regarding the common issue we all face,\n Many a times we get late reaching the railway station\n And face a dilemma deciding whether to get ticket first or rush to train\n So, below given are some options please fill most preferable");

//declaration of variables in character datatype and print the message according to  the user choice

char a='a', ch, ar[][60]={"Rush to train to catch it and inform T.T at next stop",

"Catch the train and perform journey without ticket",

"Purchase ticket first otherwise wait for next train",

"Miss the train and take ticket for next train"};

//print the message

printf("\n\n Enter the no of people to take survey from:");

//accept the input from the user
```

```
scanf("%d", &n);

//loop will execute and by using if else condition count the number of persons an print the message

for(i=0;i<4;i++)

{

printf("%c. %s\n", a, ar[i]);

a++;

}

i=0;

do

{

printf("enter your choice: ");

scanf("\n%c", &ch);

if(ch=='a')

{

frequency[0]++;

}

else if(ch=='b')

{
```

```
frequency[1]++;
}
else if(ch=='c')
{
frequency[2]++;
}
else if(ch=='d')
{
frequency[3]++;
}
else{
printf("invalid choice");
}
i++;
      }
while(i<n);
printf("\nFrequencies of option a,b,c,d are:");
for(i=0;i<4;i++)
{
```

```
printf("%d ",frequency[i],ch);
}
for(i=0;i<4;i++)
{
if(max<frequency[i])
{
max=frequency[i];
}
}
for(i=0;i<4;i++)
{
if(frequency[i]%max<1&&frequency[i]!=0)
{
++counter;
}
}
if(counter==1)
{
for(i=0;i<4;i++)
```

```
{
if(max==frequency[i])
{
printf("\nMost of the people will %s",ar[i]);
}
}
}
else if(counter==2)
{
for(i=0;i<4;i++)
{
if(max==frequency[i])
{
l[m]=i;
m++;
}
}
printf("\npeople will either %s or %s",ar[l[0]],ar[l[1]]);
}
```

```
Else
{
printf("\nNo conclusion");
}
//return an integer value
return 0;
}
```

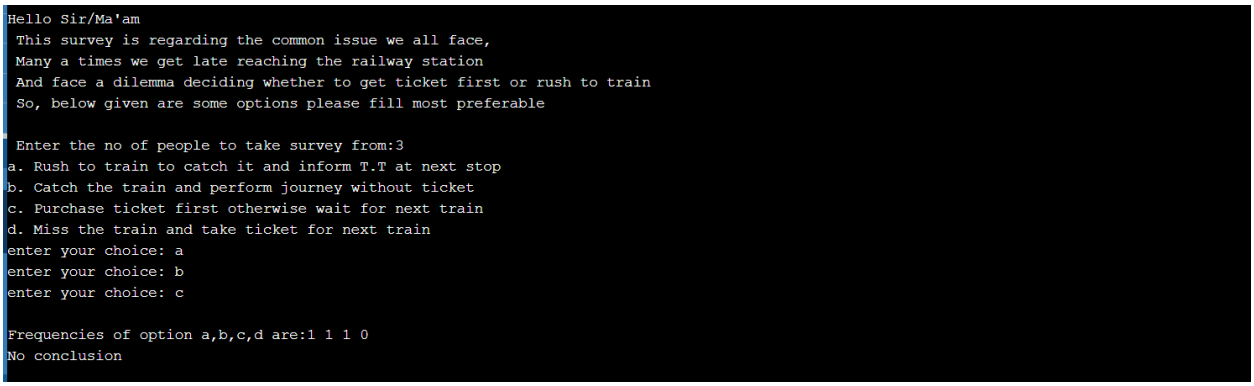
ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION :

No error.

PROGRAM'S EXPLAINATION :

In this program we have to do a survey and by using switch statement we have to accept the input from the user and by using loop and if else statement we have to count the number of persons.

OUTPUT :



PRACTICAL NUMBER : 4.5

TOPIC OF THE EXPERIMENT :

You are given task to write numbers from m to n, during this task how many times do you write digit d. e.g. if m=10 and n=25 and d=1 you write from 10 to 20 on screen and count how many times you write 1. In this case count for d=1 is 11 as from 10 to 19 you write 1, 11 times and once in 21 so total count is 12?

AIM OF THE EXPERIMENT :

Learn how to use looping construct in C.

FLOWCHART / ALGORITHM :

1. Start the program.

2. Declaration of variables in integer datatype.
3. Print the message and accept the input of number from the user.
4. Loop will execute and count the number
5. Print the number and message.
6. Returns an integer value.
7. End the program.

PROGRAM CODE :

```
//creating a header file
#include <stdio.h>
//function which returns integer value
int main()
{
//declaration of variables in integer datatype
   int m,n,d,i,temp,count=0;
//print the message
   printf("Enter starting no : ");
//accept the input from the user
   scanf("%d",&m);
//print the message
   printf("Enter last no : ");
```

```
//accept the input from the user
  scanf("%d",&n);
//print the message
 printf("Enter digit you want to count : ");
//accept the input from the user
  scanf("%d",&d);
//loop will execute to count the number
   for(i=m;i<=n;i++)
   {
       temp=i;
       while(temp)
       {
//check the condition
           if(d==(temp%10))
           count++;
           temp/=10;
       }
   }
//print the number and message
```

```
   printf("In the given series, repetition of %d is : %d
times",d,count);

//returns an integer value

return 0;

}
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION :

No Error.

PROGRAM'S EXPLAINATION :

In this program we have to enter the starting and end number from the user and choose a digit we have to count and print according to it.

OUTPUT :