Program 5 (Equivalence class testing for Commission program)
/* Design. Develop, code and run the program in nay suitable language to solve the commission problem. Analyze it from the perspective of boundary value, derive test cases, execute these test cases and discuss the test results */
/* Assumption price for lock=45.0, stock=30.0 and barrels=25.0 production limit could sell in month 70 locks,80 stocks and 90 barrels commission on sales = 10 % <= 1000 and 15 % on 1000 to 1800 and 20 % on above 1800*/

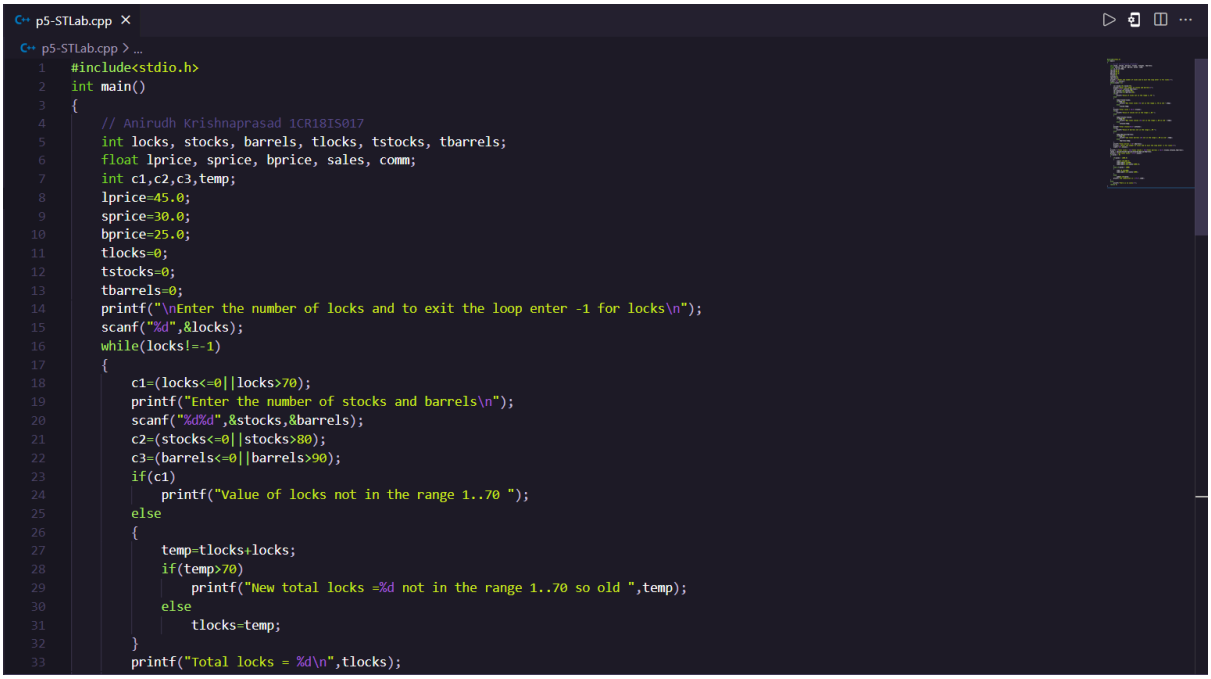
Program:

```
#include<stdio.h>
int main()
{
	// Sooraj M Singh 1CR18IS151
	int locks, stocks, barrels, tlocks, tstocks, tbarrels;
	float lprice, sprice, bprice, sales, comm;
	int c1,c2,c3,temp;
	lprice=45.0;
	sprice=30.0;
	bprice=25.0;
	tlocks=0;
	tstocks=0;
	tbarrels=0;
	printf("\nEnter the number of locks and to exit the loop enter -1 for locks\n");
	scanf("%d",&locks);
	while(locks!=-1)
	{
		c1=(locks<=0||locks>70);
		printf("Enter the number of stocks and barrels\n");
		scanf("%d%d",&stocks,&barrels);
		c2=(stocks<=0||stocks>80);
		c3=(barrels<=0||barrels>90);
		if(c1)
			printf("Value of locks not in the range 1..70 ");
		else
		{
			temp=tlocks+locks;
			if(temp>70)
```

```
                        printf("New total locks =%d not in the range 1..70 so
old ",temp);
                else
                        tlocks=temp;
        }
        printf("Total locks = %d\n",tlocks);
        if(c2)
                printf("Value of stocks not in the range 1..80 ");
        else
        {
                temp=tstocks+stocks;
                if(temp>80)
                        printf("New total stocks =%d not in the range 1..80 so
old ",temp);
                else
                        tstocks=temp;
        }
        printf("Total stocks=%d\n",tstocks);
        if(c3)
                printf("Value of barrels not in the range 1..90 ");
        else
        {
                temp=tbarrels+barrels;
                if(temp>90)
                        printf("new total barrels =%d not in the range 1..90 so
old ",temp);
                else
                        tbarrels=temp;
        }
        printf("Total barrel = %d",tbarrels);
        printf("\nEnter the number of locks and to exit the loop enter -1 for
locks\n");
        scanf("%d",&locks);
    }
    printf("\nTotal locks = %d\nTotal stocks = %d\nTotal barrels =
%d\n",tlocks,tstocks,tbarrels);
    sales = lprice*tlocks+sprice*tstocks+bprice*tbarrels;
    printf("\nThe total sales = %f\n",sales);
    if(sales > 0)
    {
        if(sales > 1800.0)
        {
                comm=0.10*1000.0;
```

```
                comm=comm+0.15*800;
                comm=comm+0.20*(sales-1800.0);
        }
        else if(sales > 1000)
        {
                comm =0.10*1000;
                comm=comm+0.15*(sales-1000);
        }
        else
                comm=0.10*sales;
        printf("The commission is = %f\n",comm);
    }
    else
        printf("There is no sales\n");
    return 0;
}
```

Program Screenshots:



```c
#include<stdio.h>
int main()
{
    // Anirudh Krishnaprasad 1CR18IS017
    int locks, stocks, barrels, tlocks, tstocks, tbarrels;
    float lprice, sprice, bprice, sales, comm;
    int c1,c2,c3,temp;
    lprice=45.0;
    sprice=30.0;
    bprice=25.0;
    tlocks=0;
    tstocks=0;
    tbarrels=0;
    printf("\nEnter the number of locks and to exit the loop enter -1 for locks\n");
    scanf("%d",&locks);
    while(locks!=-1)
    {
        c1=(locks<=0||locks>70);
        printf("Enter the number of stocks and barrels\n");
        scanf("%d%d",&stocks,&barrels);
        c2=(stocks<=0||stocks>80);
        c3=(barrels<=0||barrels>90);
        if(c1)
            printf("Value of locks not in the range 1..70 ");
        else
        {
            temp=tlocks+locks;
            if(temp>70)
                printf("New total locks =%d not in the range 1..70 so old ",temp);
            else
                tlocks=temp;
        }
        printf("Total locks = %d\n",tlocks);
```

p5-STLab.cpp

```
        printf("Total locks = %d\n",tlocks);
        if(c2)
            printf("Value of stocks not in the range 1..80 ");
        else
        {
            temp=tstocks+stocks;
            if(temp>80)
                printf("New total stocks =%d not in the range 1..80 so old ",temp);
            else
                tstocks=temp;
        }
        printf("Total stocks=%d\n",tstocks);
        if(c3)
            printf("Value of barrels not in the range 1..90 ");
        else
        {
            temp=tbarrels+barrels;
            if(temp>90)
                printf("new total barrels =%d not in the range 1..90 so old ",temp);
            else
                tbarrels=temp;
        }
        printf("Total barrel = %d",tbarrels);
        printf("\nEnter the number of locks and to exit the loop enter -1 for locks\n");
        scanf("%d",&locks);
    }
    printf("\nTotal locks = %d\nTotal stocks = %d\nTotal barrels = %d\n",tlocks,tstocks,tbarrels);
    sales = lprice*tlocks+sprice*tstocks+bprice*tbarrels;
    printf("\nThe total sales = %f\n",sales);
    if(sales > 0)
    {
        if(sales > 1800.0)
        {
```

p5-STLab.cpp

```
        scanf("%d",&locks);
    }
    printf("\nTotal locks = %d\nTotal stocks = %d\nTotal barrels = %d\n",tlocks,tstocks,tbarrels);
    sales = lprice*tlocks+sprice*tstocks+bprice*tbarrels;
    printf("\nThe total sales = %f\n",sales);
    if(sales > 0)
    {
        if(sales > 1800.0)
        {
            comm=0.10*1000.0;
            comm=comm+0.15*800;
            comm=comm+0.20*(sales-1800.0);
        }
        else if(sales > 1000)
        {
            comm =0.10*1000;
            comm=comm+0.15*(sales-1000);
        }
        else
            comm=0.10*sales;
        printf("The commission is = %f\n",comm);
    }
    else
        printf("There is no sales\n");
    return 0;
}

```

Program Output Screenshots:

```
sooraj@Asus-F-15:~/st-lab$ gcc p5-STLab.cpp
sooraj@Asus-F-15:~/st-lab$ ./a.out

Enter the number of locks and to exit the loop enter -1 for locks
35
Enter the number of stocks and barrels
40

45
Total locks = 35
Total stocks=40
Total barrel = 45
Enter the number of locks and to exit the loop enter -1 for locks
-1

Total locks = 35
Total stocks = 40
Total barrels = 45

The total sales = 3900.000000
The commission is = 640.000000
```

```
sooraj@Asus-F-15:~/st-lab$ ./a.out

Enter the number of locks and to exit the loop enter -1 for locks
25
Enter the number of stocks and barrels
25
25
Total locks = 25
Total stocks=25
Total barrel = 25
Enter the number of locks and to exit the loop enter -1 for locks
-1

Total locks = 25
Total stocks = 25
Total barrels = 25

The total sales = 2500.000000
The commission is = 360.000000
```

Test Cases:

Commission Problem Output Equivalence Class Testing

(Weak & Strong Normal Equivalence Class)

Case ID:	Description	Input Data			Expected Output		Actual Output		Status	Comments
		Locks	Stocks	Barrels	Sales	Commi-ssions	Sales	Commi-ssions		
1	Enter the value within the range for locks, stocks and barrels	35	40	45	3900	640	3900	640	Done	No issue

Weak Robustness Equivalence Class

Case ID	Description	Input data			Output Expected	Actual Output	Status	Comment
		Locks	Stocks	Barrels				
WR1	Enter the value locks = -1	-1	40	45	Terminates the input loop and proceed to calculate sales and commission (if Sales > 0)	There is no sales	working	No issue
WR2	Enter the value less than -1 or equal to zero for locks and other valid inputs	0	40	45	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	Working	No issue
WR3	Enter the value greater than 70 for locks and other valid inputs	71	40	45	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	working	No issue
WR4	Enter the value less than or equal than 0 for stocks and other valid inputs	35	0	45	Value of stocks not in the range 1..80	Value of stocks not in the range 1..80	working	No issue

WR5	Enter the value greater than 80 for stocks and other valid inputs	35	81	45	Value of stocks not in the range 1..80	Value of stocks not in the range 1..80	working	No issue
WR6	Enter the value less than or equal 0 for barrels and other valid inputs	35	40	0	Value of stocks not in the range 1..90	Value of stocks not in the range 1..90	working	No issue
WR7	Enter the value greater than 90 for barrels and other valid inputs	35	40	91	Value of stocks not in the range 1..90	Value of stocks not in the range 1..90	working	No issue

Strong Robustness equivalence Class

Case ID	Description	Input data			Output Expected	Actual Output	Status	Comment
		Locks	Stocks	Barrels				
SR1	Enter the value less than -1 for locks and other valid inputs	-2	40	45	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	working	No issue
SR2	Enter the value less than or equal than 0 for stocks and other valid inputs	35	-1	45	Value of stocks not in the range 1..80	Value of stocks not in the range 1..80	working	No issue
SR3	Enter the value less than or equal 0 for barrels and other valid inputs	35	40	-2	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	working	No issue
SR4	Enter the locks and stocks less than or equal to 0 and other valid inputs	-2	-1	45	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	working	No issue
					Value of stocks not in the range 1..80	Value of stocks not in the range 1..80		

SR5	Enter the locks and barrel less than or equal to 0 and other valid inputs	-2	40	-1	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	working	No issue
					Value of Locks not in the range 1..90	Value of Locks not in the range 1..90		
SR6	Enter the stocks and barrel less than or equal to 0 and other valid inputs	35	-1	-1	Value of stocks not in the range 1..80	Value of stocks not in the range 1..80	working	No issue
					Value of Locks not in the range 1..90	Value of Locks not in the range 1..90		
SR7	Enter the stocks and barrel less than or equal to 0 and other valid inputs	-2	-2	-2	Value of Locks not in the range 1..70	Value of Locks not in the range 1..70	working	No issue
					Value of stocks not in the range 1..80	Value of stocks not in the range 1..80		
					Value of Barrels not in the range 1..90	Value of Barrels not in the range 1..90		

Some addition equivalence Boundary checking

Case ID:	Description	Input Data			Expected Output		Actual Output		Status	Comments
		Locks	Stocks	Barrels	Sales	Commi-ssions	Sales	Commi-ssions		
OR1	Enter the value for lock, stocks and barrels where 0 < Sales < 1000	5	5	5	500	50	500	50	working	No issue
OR2	Enter the value for lock, stocks and barrels where 1000 < Sales < 1800	15	15	15	1500	175	1500	175	working	No issue

OR3	Enter the value for lock, stocks and barrels where Sales < 1800	25	25	25	2500	360	2500	360	working	No issue