Program 1:

Aim: Design, develop, code and run the program in any suitable language to solve the commission problem. Analyze it from the perspective of boundary value testing, derive different test cases, execute these test cases and discuss the test results.

Code:

/* Assumption price for lock=45.0, stock=30.0 and barrels=25.0 production limit could sell in a month 70 locks,80 stocks and 90 barrels commission on sales = 10 % <= 1000 and 15 % on 1000 to 1800 and 20 % on above 1800*/

```
#include<stdio.h>
int main()
{
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;
}
```

Test Case Name : Boundary Value for Commission Problem
Test data : price Rs for lock - 45.0 , stock - 30.0 and barrel - 25.0
sales = total lock * lock price + total stock * stock price + total barrel * barrel price
commission : 10% up to sales Rs 1000 , 15 % of the next Rs 800 and 20 % on any sales in excess of 1800
Pre-condition : lock = -1 to exit and 1< =lock < = 70 , 1<=stock <=80 and 1<=barrel<=90
Brief Description : The salesperson had to sell at least one complete rifle per month.

CHECKING BOUNDARY VALUE FOR LOCKS, STOCKS AND BARRELS AND COMMISSION

Commission Problem Output Boundary Value Analysis Cases

Case Id	Description	Input Data			Expected Output		Actual output		Status	
		Total Locks	Total Stocks	Total Barrels	Sales	Comm-ission	Sales	Comm-ission		Comment
1	Enter the min value for locks, stocks and barrels	1	1	1	100	10				output minimum
2	Enter the min value for 2 items and min +1 for any one item	1	1	2	125	12.5				output minimum +
3		1	2	1	130	13				output minimum +
4		2	1	1	145	14.5				output minimum +
5	Enter the value sales approximately mid value between 100 to 1000	5	5	5	500	50				Midpoint
6	Enter the values to calculate the commission for sales nearly less than 1000	10	10	9	975	97.5				Border point -
7		10	9	10	970	97				Border point -
8		9	10	10	955	95.5				Border point -
9	Enter the values sales exactly equal to 1000	10	10	10	1000	100				Border point
10	Enter the values to calculate the commission for sales nearly greater than 1000	10	10	11	1025	103.75				Border point +
11		10	11	10	1030	104.5				Border point +
12		11	10	10	1045	106.75				Border point +

13	Enter the value sales approximately mid value between 1000 to 1800	14	14	14	1400	160				Midpoint
14	Enter the values to calculate the commission for sales nearly less than 1800	18	18	17	1775	216.25				Border point -
15		18	17	18	1770	215.5				Border point -
16		17	18	18	1755	213.25				Border point -
17	Enter the values sales exactly equal to 1800	18	18	18	1800	220				Border point
18	Enter the values to calculate the commission for sales nearly greater than 1800	18	18	19	1825	225				Border point +
19		18	19	18	1830	226				Border point +
20		19	18	18	1845	229				Border point +
21	Enter the values normal value for lock, stock and barrel	48	48	48	4800	820				Midpoint
22	Enter the max value for 2 items and max - 1 for any one item	70	80	89	7775	1415				Output maximum -
23		70	79	90	7770	1414				Output maximum -
24		69	80	90	7755	1411				Output maximum -
25	Enter the max value for locks, stocks and barrels	70	80	90	7800	1420				Output maximum