Program 9: Software Testing Laboratory

Design, develop, code and run the program in any suitable language to implement the quick sort algorithm. Determine the basis paths and using them derive different test cases, execute these test cases and discuss the test results.

Program:

```
#include <stdio.h>
int main()
{
    int locks, stocks, barrels, tlocks, tstocks, tbarrels;
    float lprice, sprice, bprice, lsales, ssales, bsales, sales, comm;
    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)
    {
        printf("enter the number of stocks and barrels\n");
        scanf("%d%d", &stocks, &barrels);
        tlocks = tlocks + locks;
        tstocks = tstocks + stocks;
        tbarrels = tbarrels + barrels;
        printf("\nenter the number of locks and to exit the loop enter -
1 for locks\n");
        scanf("%d", &locks);
    }
    printf("\ntotal locks = %d\n", tlocks);
    printf("total stocks =%d\n", tstocks);
    printf("total barrels =%d\n", tbarrels);
    lsales = lprice * tlocks;
    ssales = sprice * tstocks;
    bsales = bprice * tbarrels;
    sales = lsales + ssales + bsales;
    printf("\nthe total sales=%f\n", sales);
    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);
    return 0;
}
```

Output:

```
sooraj@Asus-F-15:~/st-lab$ gcc p9-STlab.cpp
sooraj@Asus-F-15:~/st-lab$ ./a.out

enter the number of locks and to exit the loop enter -1 for locks
10
enter the number of stocks and barrels
10
10

enter the number of locks and to exit the loop enter -1 for locks
11
enter the number of stocks and barrels
11
11

enter the number of locks and to exit the loop enter -1 for locks
-1

total locks = 21
total stocks =21
total barrels =21

the total sales=2100.000000
the commission is=280.000000
```

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

enter the number of locks and to exit the loop enter -1 for locks
-1

total locks = 0
total stocks =0
total barrels =0

the total sales=0.000000
the commission is=0.000000
```

Boundary Value Analysis:

Case Id	Description	Input Data			Expected Output		Actual output		Status	Comment
		Total Locks	Total Stocks	Total Barrels	Sales	Comm-ission	Sales	Comm-ission		
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	10	10	11	1025	103.75				Border point +
1		10	11	1	103	104				Border point

1	greater than 1000			0	0	.5				+
1 2		11	10	1 0	104 5	106 .75				Border point +