

# **Operating Systems Lab**



## **Lab work # 09**

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Q1: Write a program to implement this scenario:  
There is a water filter which is adding 10L water in one second/iteration and five persons that are getting water from filter each person getting 5L in one second/iteration. Implement this using Semaphores. First solve with binary semaphore then you can consider that three persons can take water at the same time?

Ans :

```
#include <stdio.h>
#include <stdlib.h>
int mut = 1;
int full = 0;
int empty = 10, x = 0;

void tenliter_function()
{
    --mut;
    ++full;
    --empty;
    x=x+10;
    printf("\n Add 10 liter water to water filter then total
water %d liter ",x);
    ++mut;
}

void fiveliter_function()
{
    -mut;
```

```

--full;
x=x-5;
printf("\nremove 5 liter water from water filter then
%d warter remain",x);
++mut;
++empty;
}

```

```

int main(){
int n, i;
printf("\n1. Press 1 for give water 10 litre"
"\n2. Press 2 for take 5 litre"
"\n3. Press 3 for Exit");
for (i = 1; i > 0; i++){
printf("\nEnter your choice:");
scanf("%d", &n);
switch (n){
case 1:
if((mut == 1) && (empty != 0)){
tenliter_function();
}
else
{
printf("Water fileter is fulll");
}
break;
case 2:
if((mut ==1)&& (full !=0))
{
fiveliter_function();
}
}
}

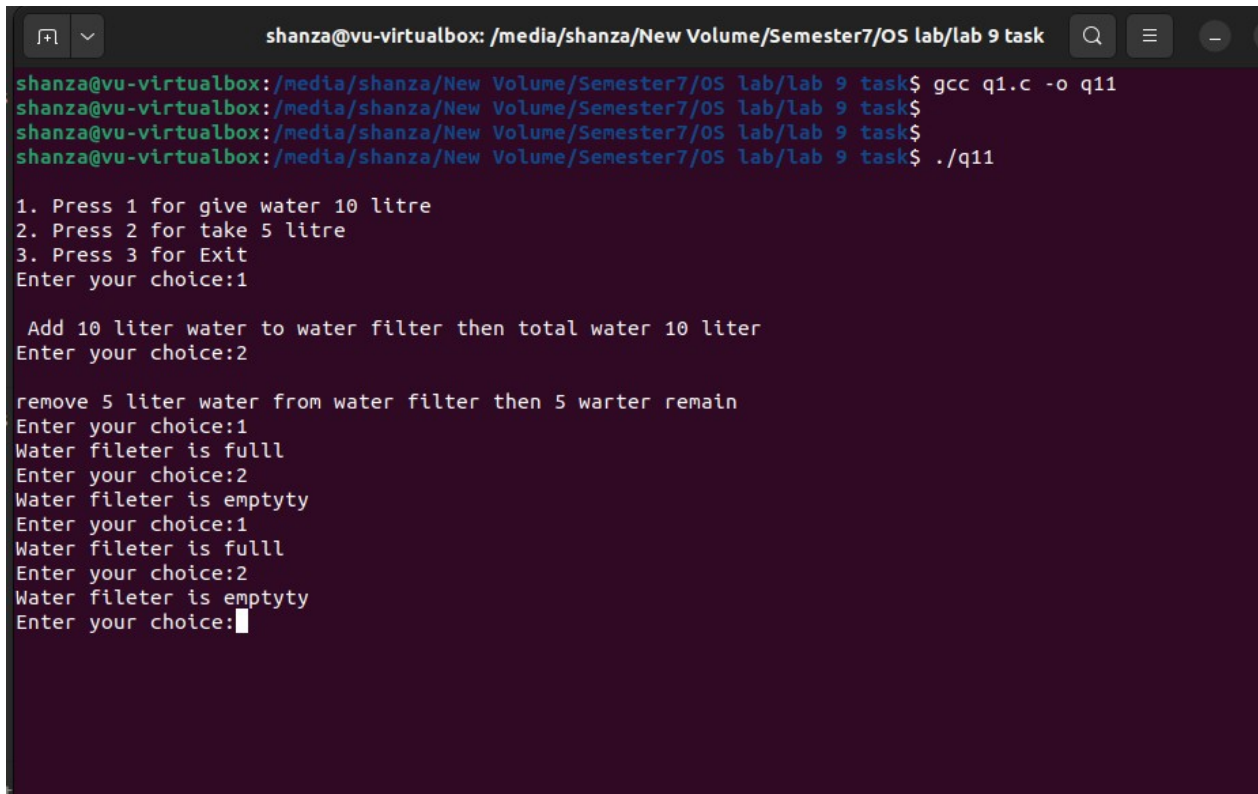
```

```

        else
        {
            printf("Water fileter is emptyty");
        }
        break;
    case 3:
        exit(0);
        break;
    }
}
return 0;
}

```

## Screen shot:



```

shanza@vu-virtualbox: /media/shanza/New Volume/Semester7/OS lab/lab 9 task
shanza@vu-virtualbox:/media/shanza/New Volume/Semester7/OS lab/lab 9 task$ gcc q1.c -o q11
shanza@vu-virtualbox:/media/shanza/New Volume/Semester7/OS lab/lab 9 task$
shanza@vu-virtualbox:/media/shanza/New Volume/Semester7/OS lab/lab 9 task$ ./q11

1. Press 1 for give water 10 litre
2. Press 2 for take 5 litre
3. Press 3 for Exit
Enter your choice:1

Add 10 liter water to water filter then total water 10 liter
Enter your choice:2

remove 5 liter water from water filter then 5 warter remain
Enter your choice:1
Water fileter is fulll
Enter your choice:2
Water fileter is emptyty
Enter your choice:1
Water fileter is fulll
Enter your choice:2
Water fileter is emptyty
Enter your choice:

```