LAB # 7

Q) Implement the above code and paste the screen shot of the output.

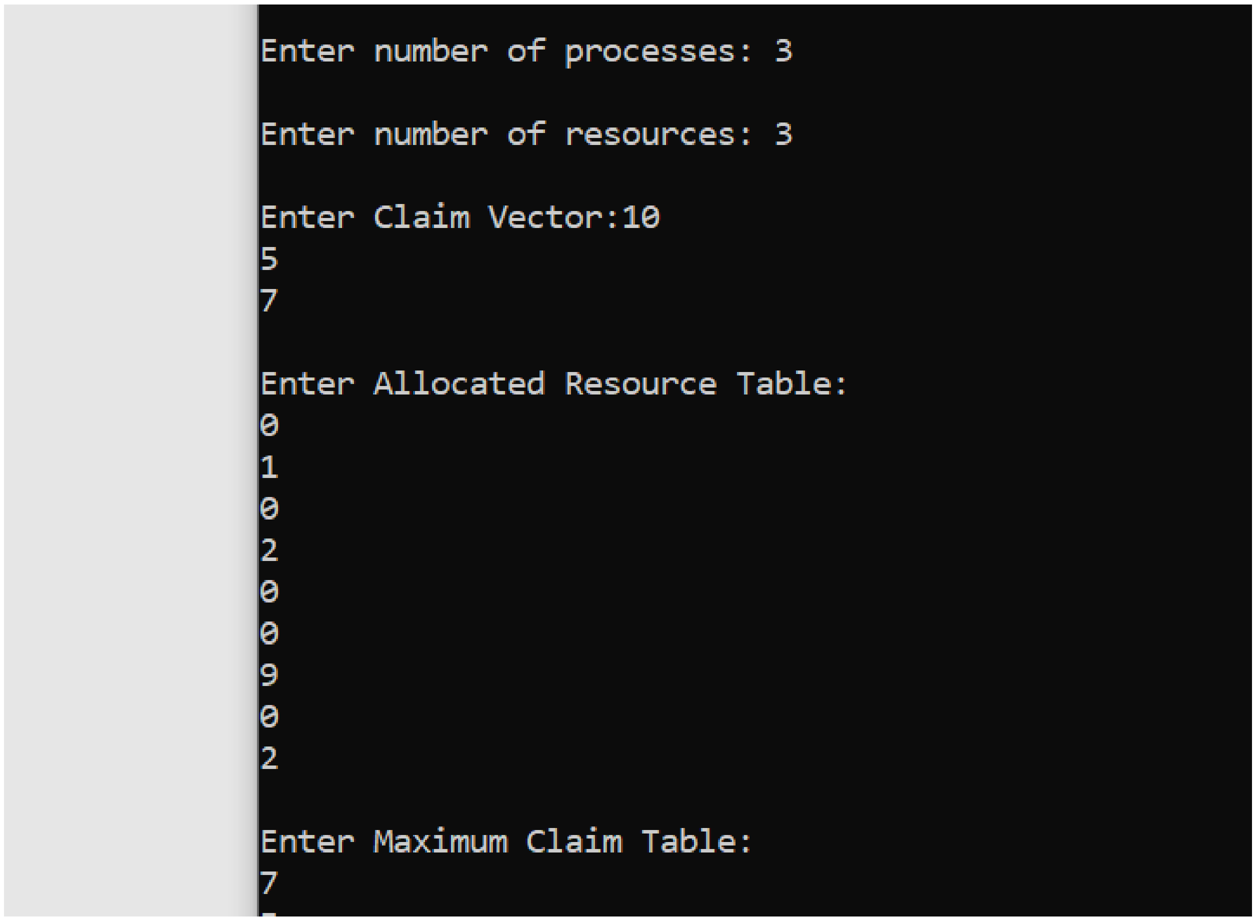
```
#include <stdio.h>
int current[5][5], maximum_claim[5][5], available[5];
int allocation[5] = {0, 0, 0, 0, 0};
int maxres[5], running[5], safe = 0;
int counter = 0, i, j, exec, resources, processes, k = 1;

int main()
{
printf("\nEnter number of processes: ");
scanf("%d", &processes);
for (i = 0; i < processes; i++)
{
running[i] = 1;
counter++;
}
printf("\nEnter number of resources: ");
scanf("%d", &resources);

printf("\nEnter Claim Vector:");
for (i = 0; i < resources; i++)
{
scanf("%d", &maxres[i]);
}
printf("\nEnter Allocated Resource Table:\n");
for (i = 0; i < processes; i++)
```

```
{
for(j = 0; j < resources; j++)
{
scanf("%d", &current[i][j]);
}
}
printf("\nEnter Maximum Claim Table:\n");
for (i = 0; i < processes; i++)
{
for(j = 0; j < resources; j++)
{
scanf("%d", &maximum_claim[i][j]);
}
}
printf("\nThe Claim Vector is: ");
for (i = 0; i < resources; i++)
{
printf("\t%d", maxres[i]);
}
printf("\nThe Allocated Resource Table:\n");
for (i = 0; i < processes; i++)
{
for (j = 0; j < resources; j++)
{
printf("\t%d", current[i][j]);
}
printf("\n");
}
```

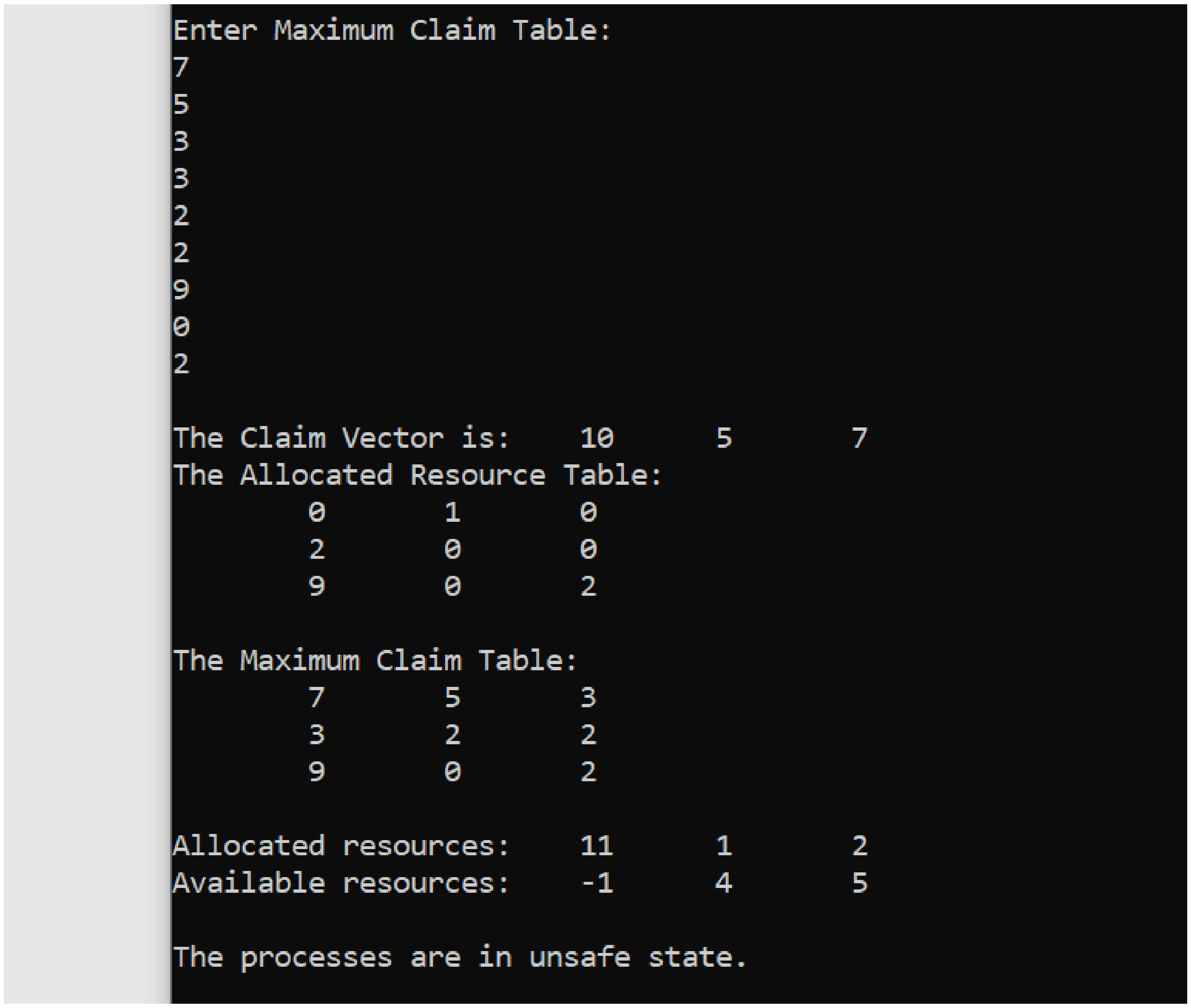
```
printf("\nThe Maximum Claim Table:\n");
for (i = 0; i < processes; i++)
{
for (j = 0; j < resources; j++)
{
printf("\t%d", maximum_claim[i][j]);
}
printf("\n");
}
for (i = 0; i < processes; i++)
{
for (j = 0; j < resources; j++)
{
allocation[j] += current[i][j];
}
}
printf("\nAllocated resources:");
for (i = 0; i < resources; i++)
{
printf("\t%d", allocation[i]);
}

for (i = 0; i < resources; i++)
{
available[i] = maxres[i] - allocation[i];
}
printf("\nAvailable resources:");
```

```
for (i = 0; i < resources; i++)
{
printf("\t%d", available[i]);
}

printf("\n");
while (counter != 0)
{
safe = 0;
for (i = 0; i < processes; i++)
{
if (running[i])
{
exec = 1;
for (j = 0; j < resources; j++)
{
if (maximum_claim[i][j] - current[i][j] > available[j])
{
exec = 0;
break;
}
}
if (exec)
{
printf("\nProcess%d is executing\n", i + 1);
running[i] = 0;
counter--;
safe = 1;
for (j = 0; j < resources; j++)
{
available[j] += current[i][j];
}
break;
}
}
}

if (!safe)
{
printf("\nThe processes are in unsafe state.\n");
break;
}
else
{
printf("\nThe process is in safe state");
printf("\nAvailable vector:");

for (i = 0; i < resources; i++)
{
printf("\t%d", available[i]);
}

printf("\n");
}
}
return 0;
```

}



```
Enter number of processes: 3

Enter number of resources: 3

Enter Claim Vector:10
5
7

Enter Allocated Resource Table:
0
1
0
2
0
0
9
0
2

Enter Maximum Claim Table:
7
```



```
Enter Maximum Claim Table:
7
5
3
3
2
2
9
0
2

The Claim Vector is:    10      5       7
The Allocated Resource Table:
        0       1       0
        2       0       0
        9       0       2

The Maximum Claim Table:
        7       5       3
        3       2       2
        9       0       2

Allocated resources:    11      1       2
Available resources:    -1      4       5

The processes are in unsafe state.
```