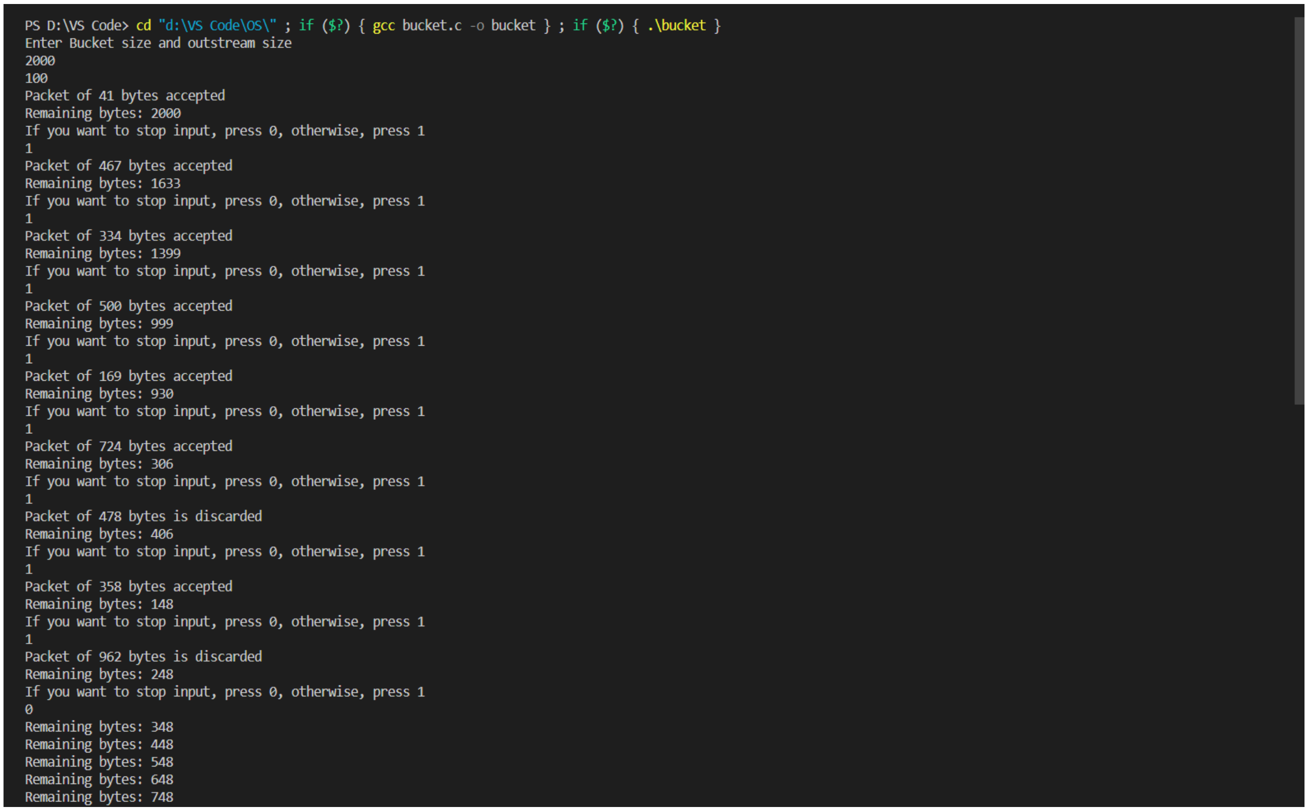
WEEK 14

Write a program for congestion control using Leaky bucket algorithm.

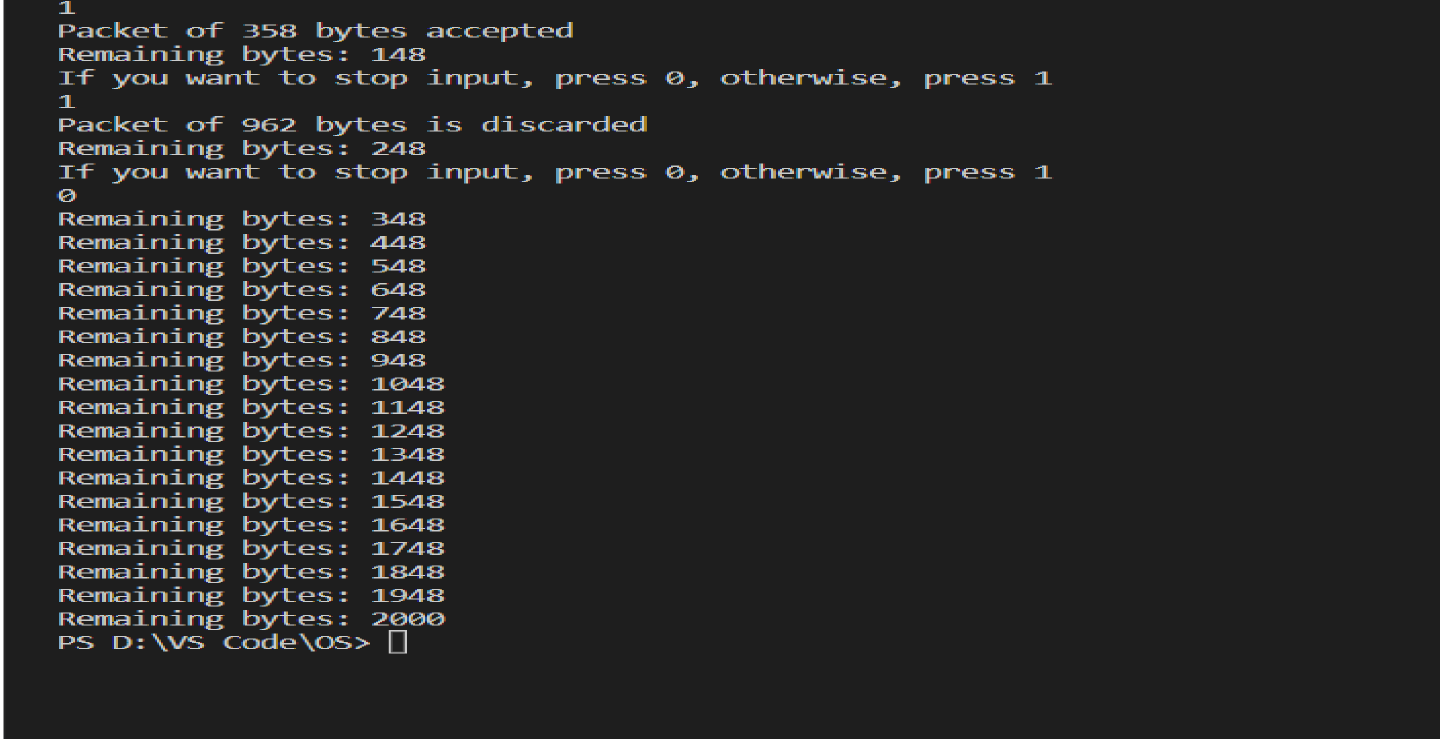
CODE:

```
#include <stdio.h>
#include <stdlib.h> // Include this for the rand() function
int main()
{
    int buckets, outlets, k = 1, num, remaining;
    printf("Enter Bucket size and outstream size\n");
    scanf("%d %d", &buckets, &outlets);
    remaining = buckets;
    while (k)
    {
        num = rand() % 1000; // Generate a random number between 0 and
999
        if (num < remaining)
        {
            remaining = remaining - num;
            printf("Packet of %d bytes accepted\n", num); // Added missing
variable
        }
        else
        {
            printf("Packet of %d bytes is discarded\n", num);
        }
        if (buckets - remaining > outlets)
        {
            remaining += outlets; // Fixed the calculation
        }
        else
            remaining = buckets;
        printf("Remaining bytes: %d \n", remaining);
        printf("If you want to stop input, press 0, otherwise, press 1\n");
        scanf("%d", &k);
    }
    while (remaining < buckets) // Fixed the condition
    {
        if (buckets - remaining > outlets)
        {
            remaining += outlets; // Fixed the calculation
        }
        else
            remaining = buckets;
        printf("Remaining bytes: %d \n", remaining);
    }
    return 0; // Added a return statement to indicate successful completion
}
```

OUTPUT:

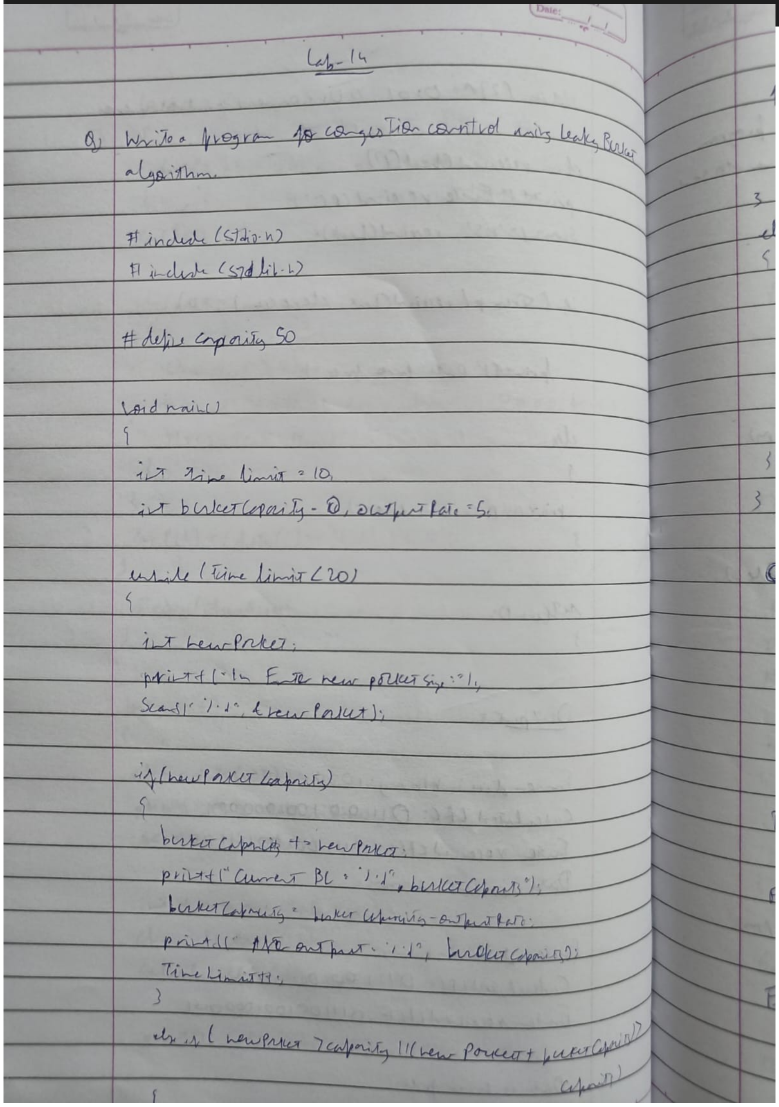


```
PS D:\VS Code> cd "d:\VS Code\OS\" ; if ($?) { gcc bucket.c -o bucket } ; if ($?) { .\bucket }
Enter Bucket size and outstream size
2000
100
Packet of 41 bytes accepted
Remaining bytes: 2000
If you want to stop input, press 0, otherwise, press 1
1
Packet of 467 bytes accepted
Remaining bytes: 1633
If you want to stop input, press 0, otherwise, press 1
1
Packet of 334 bytes accepted
Remaining bytes: 1399
If you want to stop input, press 0, otherwise, press 1
1
Packet of 500 bytes accepted
Remaining bytes: 999
If you want to stop input, press 0, otherwise, press 1
1
Packet of 169 bytes accepted
Remaining bytes: 930
If you want to stop input, press 0, otherwise, press 1
1
Packet of 724 bytes accepted
Remaining bytes: 306
If you want to stop input, press 0, otherwise, press 1
1
Packet of 478 bytes is discarded
Remaining bytes: 406
If you want to stop input, press 0, otherwise, press 1
1
Packet of 358 bytes accepted
Remaining bytes: 148
If you want to stop input, press 0, otherwise, press 1
1
Packet of 962 bytes is discarded
Remaining bytes: 248
If you want to stop input, press 0, otherwise, press 1
0
Remaining bytes: 348
Remaining bytes: 448
Remaining bytes: 548
Remaining bytes: 648
Remaining bytes: 748
```



```
1
Packet of 358 bytes accepted
Remaining bytes: 148
If you want to stop input, press 0, otherwise, press 1
1
Packet of 962 bytes is discarded
Remaining bytes: 248
If you want to stop input, press 0, otherwise, press 1
0
Remaining bytes: 348
Remaining bytes: 448
Remaining bytes: 548
Remaining bytes: 648
Remaining bytes: 748
Remaining bytes: 848
Remaining bytes: 948
Remaining bytes: 1048
Remaining bytes: 1148
Remaining bytes: 1248
Remaining bytes: 1348
Remaining bytes: 1448
Remaining bytes: 1548
Remaining bytes: 1648
Remaining bytes: 1748
Remaining bytes: 1848
Remaining bytes: 1948
Remaining bytes: 2000
PS D:\VS Code\OS> 
```

OBSERVATION:



Lab-14

Q) Write a program for congestion control using leaky Bucket algorithm.

```
#include <stdio.h>
#include <stdlib.h>

#define capacity 50

void main()
{
 int time limit = 10,
 int bucketCapacity - 0, outputRate = 5.

while (Time limit < 20)
{
 int newPacket;
 printf("\n Enter new packet size:");
 Scanf("%d", &newPacket);

 if(newPacket < capacity)
 {
   bucketCapacity += newPacket;
   printf("Current BC : %d", bucketCapacity);
   bucketCapacity = bucket capacity - outputRate;
   printf(" After output : %d", bucketCapacity);
   TimeLimit++;
 }
 else if ( newPacket > capacity || (new Packet + bucketCapacity > capacity)
 {
    printf("\n New packet cannot be added");
    bucketCapacity = bucketCapacity - outputRate;
    printf("Bucket capacity after output: %d", bucketCapacity);
  }
  else if (bucketCapacity<0)
  {
    bucketCapacity = 0;
    printf("\n After output: %d", BucketCapacity);
    timeLimit++;
    exit(0);
  }
 }
}
```

Output:-

```
 Enter new packet size: 4000
 Enter outgoing rate: 200

Enter packet size: 3000
Packet size 3000 is added in bucket

Enter 1 to continue or 0 to stop: 1

Enter packet size: 2000
Packet size 2000 is added and in bucket

Enter 1 to continue and 0 to stop: 0
```