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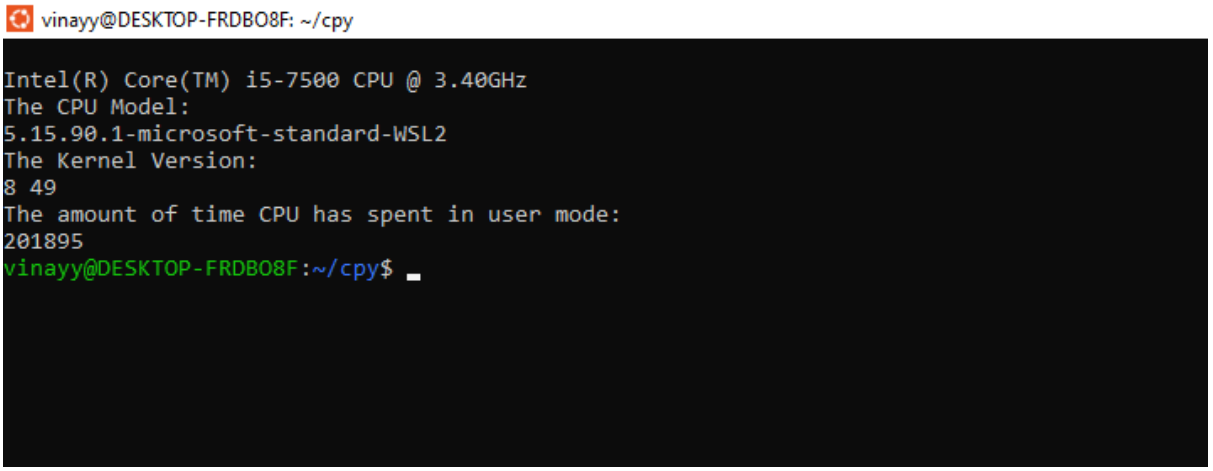
Subject - OS

Qn 5: Write a program to report behaviour of Linux kernel including kernel version, CPU type and CPU information.

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

int main() {
    system("clear");
    system("echo");

    printf("The CPU Model: ");
    system("cat /proc/cpuinfo | grep -m1 'model name' | cut -c 14-");

    printf("\nThe Kernel Version: ");
    system("cat /proc/sys/kernel/osrelease");

    printf("\nThe amount of time CPU has spent in user mode: ");
    system("cat /proc/stat | grep -m1 'cpu' | cut -c 15-18");

    printf("\nThe number of context switches: ");
    system("cat /proc/stat | grep 'ctxt' | cut -c 6-");

    return 0;
}
```

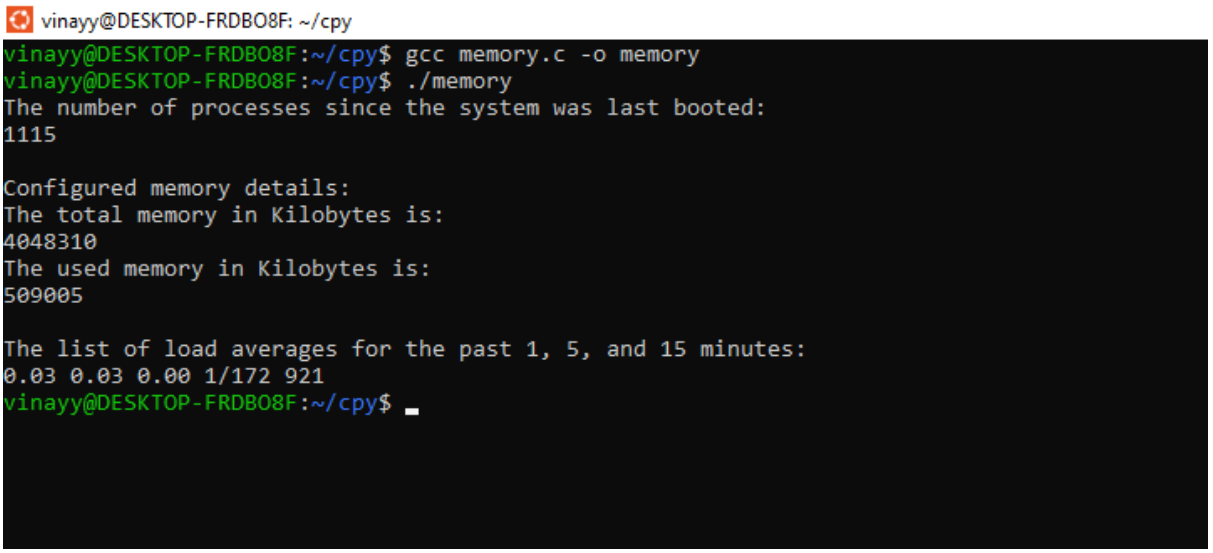
Output



Qn 6: Write a program to report behaviour of Linux kernel including information on configured memory, amount of free and used memory. (Memory information)

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

int main(int argc, char *argv[]) {
    printf("The number of processes since the system was last booted:\n");
    system("cat /proc/stat | grep 'processes' | cut -c 11-15");

    printf("\nConfigured memory details:\n");

    printf("The total memory in Kilobytes is:\n");
    system("free –kilo | awk '/Mem:/ {print $2}'");

    printf("The used memory in Kilobytes is:\n");
    system("free –kilo | awk '/Mem:/ {print $3}'");

    printf("\nThe list of load averages for the past 1, 5, and 15 minutes:\n");
    system("cat /proc/loadavg");

    return 0;
}
```

Output



Qn 7: Write a program to copy files using system calls.
(This question has to be done via read/write system calls only.)

```
#include<io.h>
#include<stdio.h>
#include<stdlib.h>
#include<fcntl.h>
#include<unistd.h>
#include<sys/stat.h>
void main()
{
        char source[10];
      char destination[10];
      int s;
      int d;
      int c=0;
      char temp[50];
      printf("Enter the name of the source file ");
      scanf("%s", source);
      printf("Enter the name of the destination file ");
      scanf("%s", destination);

      s=open(source, 0);
      if(s==-1)
      {
            printf("file open error!!!!!!");
            exit(0);
      }
      d=open(destination, 1);
      if(d==-1)
      {
            d = create(destination, 0666);
```

```
}
while((c=read(s, temp, sizeof(temp))) >0)
{
        write(d, temp, c);
}
close(s);
close(d);
}
```

Output: