

# System Software Lab

Github : [ceccs18c59/cs331: System Software Lab \(github.com\)](https://github.com/ceccs18c59/cs331: System Software Lab)

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## Lab Exam

Write a C program to implement Relocation Loader.

## Program

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
#include <stdlib.h>
void main()
{
    char add[6], length[10], input[10], binary[12], bitmask[12], relocbit;
    int start, inp, len, i, address, opcode, addr, actualadd;
    FILE *file_input, *file_output;
    printf("Enter the actual starting address : ");
    scanf("%d", &start);
    file_input = fopen("relinput.dat", "r");
    file_output = fopen("reloutput.dat", "w");
    fscanf(file_input, "%s", input);
    while (strcmp(input, "E") != 0)
    {
        if (strcmp(input, "H") == 0)
        {
            fscanf(file_input, "%s", add);
            fscanf(file_input, "%s", length);
            fscanf(file_input, "%s", input);
        }
        if (strcmp(input, "T") == 0)
        {
            fscanf(file_input, "%d", &address);
            fscanf(file_input, "%s", bitmask);
            address += start;
            len = strlen(bitmask);
            for (i = 0; i < len; i++)
            {
                fscanf(file_input, "%d", &opcode);
                fscanf(file_input, "%d", &addr);
                relocbit = bitmask[i];
                if (relocbit == '0')
                    actualadd = addr;
            }
        }
    }
}
```

```

        else
            actualadd = addr + start;
            fprintf(file_output, "%d\t%d%d\n", address, opcode, actualadd);
            address += 3;
        }
        fscanf(file_input, "%s", input);
    }
}
fclose(file_input);
fclose(file_output);
printf("\n Finished! ");
getch();
}

```

## Result

### Input



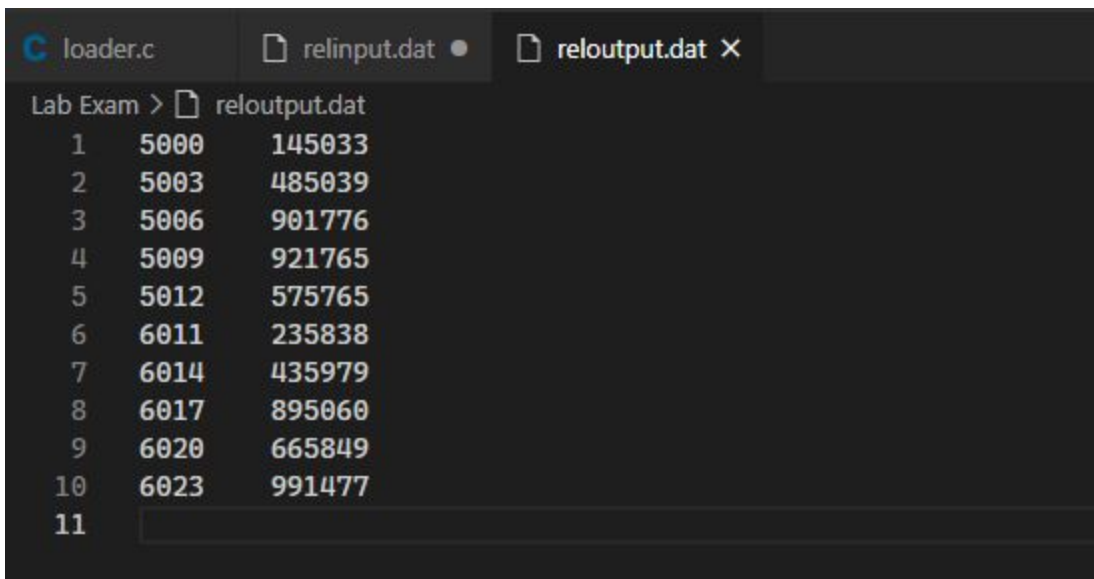
The screenshot shows a terminal window with the following content:

```

C loader.c relinput.dat reloutput.dat
Lab Exam > relinput.dat
1 H 1000 200
2 T 1000 11001 14 1033 48 1039 90 1776 92 1765 57 1765
3 T 2011 11110 23 1838 43 1979 89 1060 66 1849 99 1477
4 E 1000
5
6

```

### Output



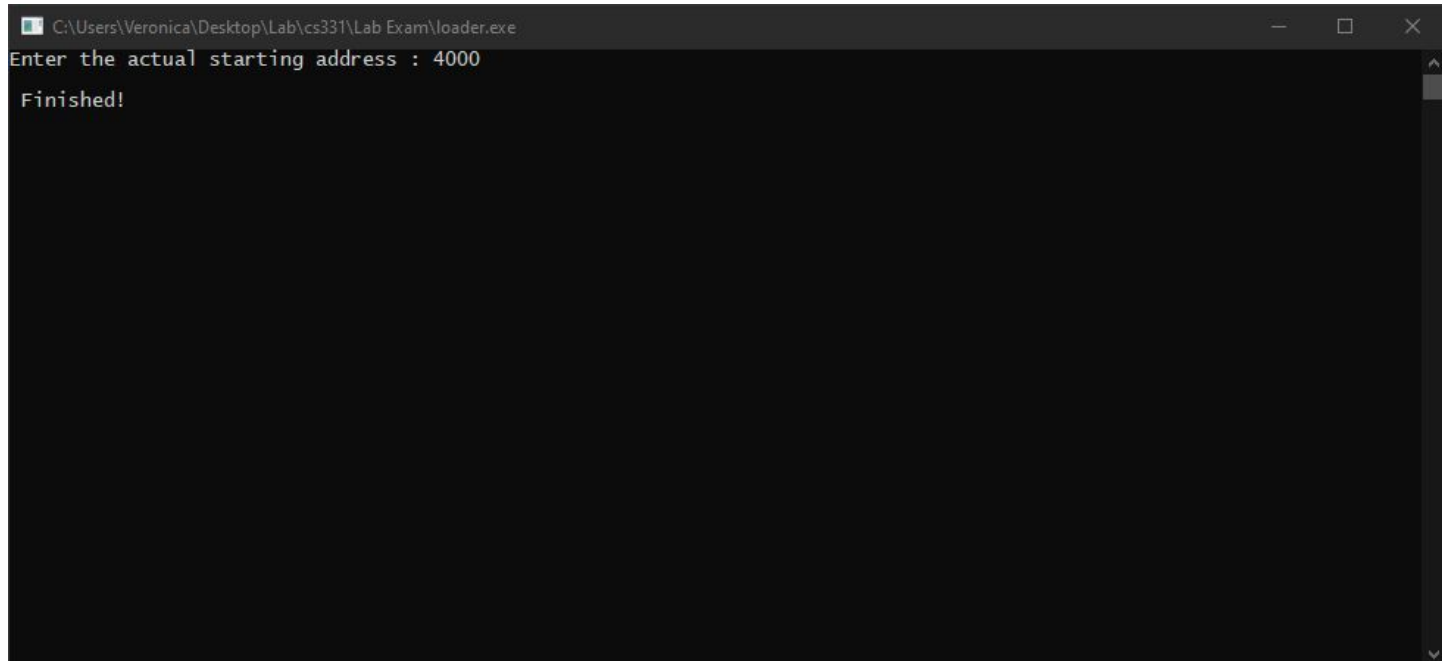
The screenshot shows a terminal window with the following content:

```

C loader.c relinput.dat reloutput.dat X
Lab Exam > reloutput.dat
1 5000 145033
2 5003 485039
3 5006 901776
4 5009 921765
5 5012 575765
6 6011 235838
7 6014 435979
8 6017 895060
9 6020 665849
10 6023 991477
11

```

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```
C:\Users\Veronica\Desktop\Lab\cs331\Lab Exam\loader.exe
Enter the actual starting address : 4000
Finished!
```