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LAB-2: BOOT LOADER

(A). PROGRAM 1: Boot loader that does nothing

CODE:

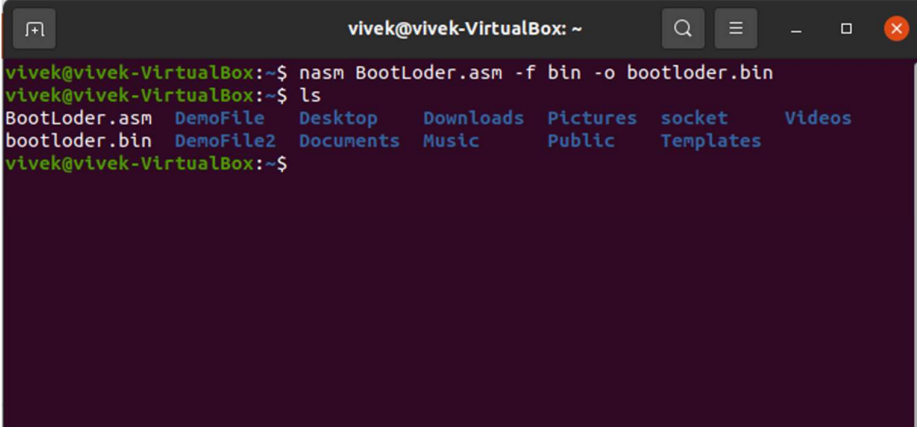


```
1 [BITS 16]
2 [ORG 0x7c00]
3 JMP $
4 TIMES 510-($-$) db 0
5 DW 0xAA55
```

The screenshot shows a text editor window titled "BootLoder.asm" with a menu bar (Open, Save, etc.) and a status bar at the bottom indicating the file path, text encoding, tab width, and current cursor position (Ln 5, Col 10).

STEPS FOLLOWED:

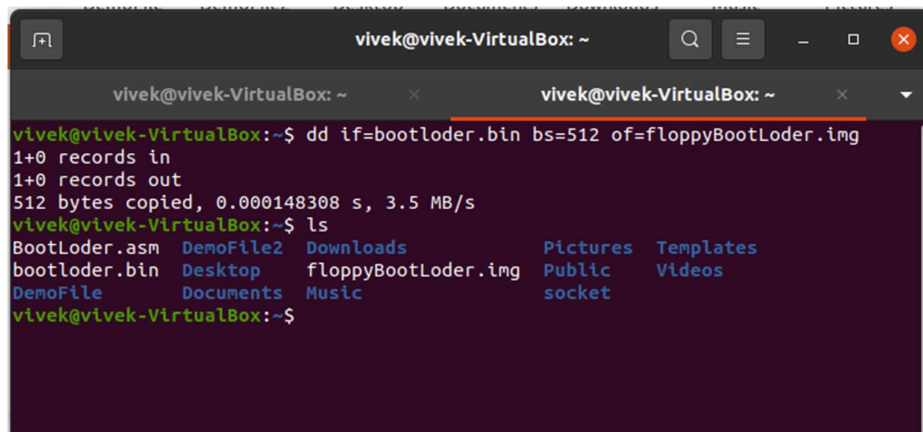
1. Making .bin file



```
vivek@vivek-VirtualBox: ~
vivek@vivek-VirtualBox:~$ nasm BootLoder.asm -f bin -o bootloder.bin
vivek@vivek-VirtualBox:~$ ls
BootLoder.asm  DemoFile  Desktop  Downloads  Pictures  socket  Videos
bootloder.bin  DemoFile2  Documents  Music      Public    Templates
```

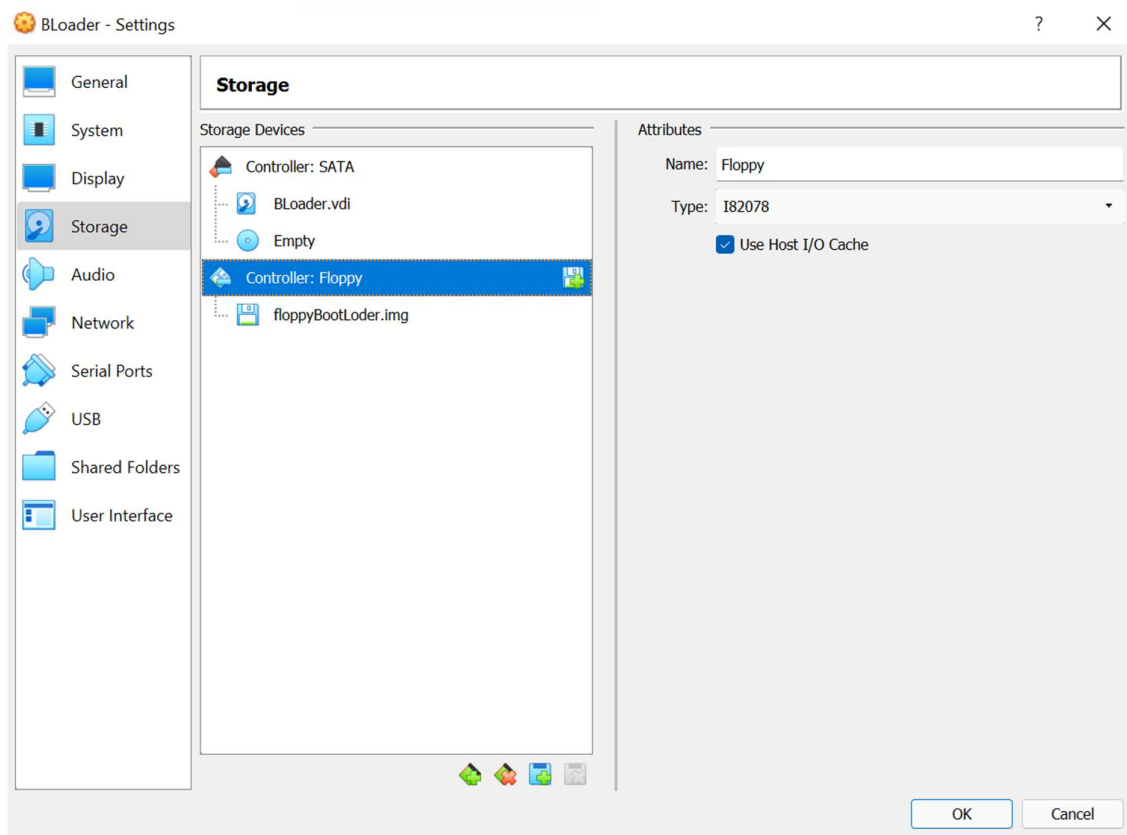
The screenshot shows a terminal window with the user's prompt "vivek@vivek-VirtualBox: ~". The user has entered two commands: "nasm BootLoder.asm -f bin -o bootloder.bin" and "ls". The output of the "ls" command shows the files in the current directory, including "BootLoder.asm", "DemoFile", "Desktop", "Downloads", "Pictures", "socket", "Videos", "bootloder.bin", "DemoFile2", "Documents", "Music", "Public", and "Templates".

2. Making .img file

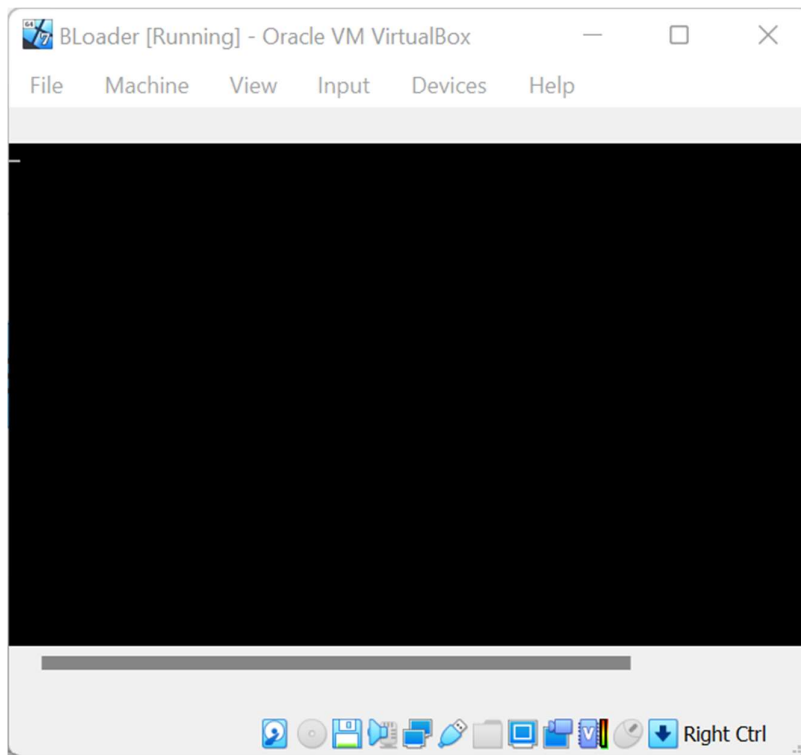


```
vivek@vivek-VirtualBox: ~  
vivek@vivek-VirtualBox:~$ dd if=bootloder.bin bs=512 of=floppyBootLoder.img  
1+0 records in  
1+0 records out  
512 bytes copied, 0.000148308 s, 3.5 MB/s  
vivek@vivek-VirtualBox:~$ ls  
BootLoder.asm  DemoFile2  Downloads  Pictures  Templates  
bootloder.bin  Desktop    floppyBootLoder.img  Public    Videos  
DemoFile       Documents  Music       socket  
vivek@vivek-VirtualBox:~$
```

3. Attaching Floppy image to new virtual machine

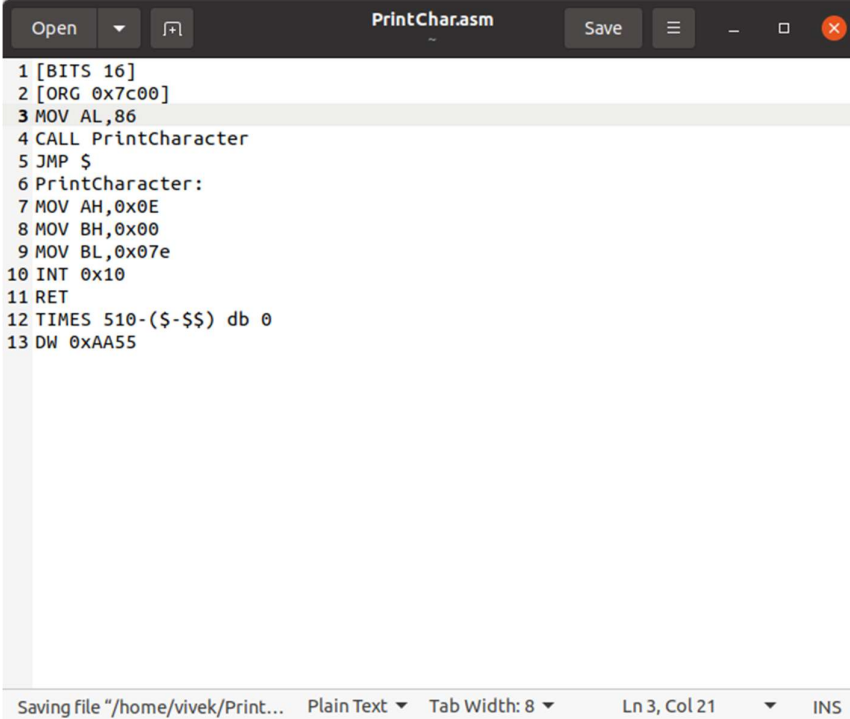


OUTPUT:



PROGRAM 2: Boot loader that Prints a single character

CODE:

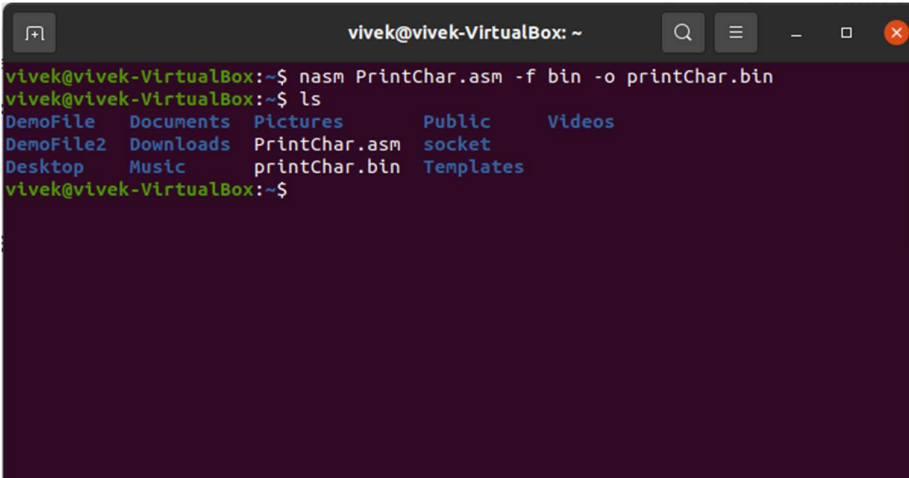


```
1 [BITS 16]
2 [ORG 0x7c00]
3 MOV AL,86
4 CALL PrintCharacter
5 JMP $
6 PrintCharacter:
7 MOV AH,0x0E
8 MOV BH,0x00
9 MOV BL,0x07e
10 INT 0x10
11 RET
12 TIMES 510-($-$$) db 0
13 DW 0xAA55
```

Saving File "/home/vivek/Print... Plain Text Tab Width: 8 Ln 3, Col 21 INS

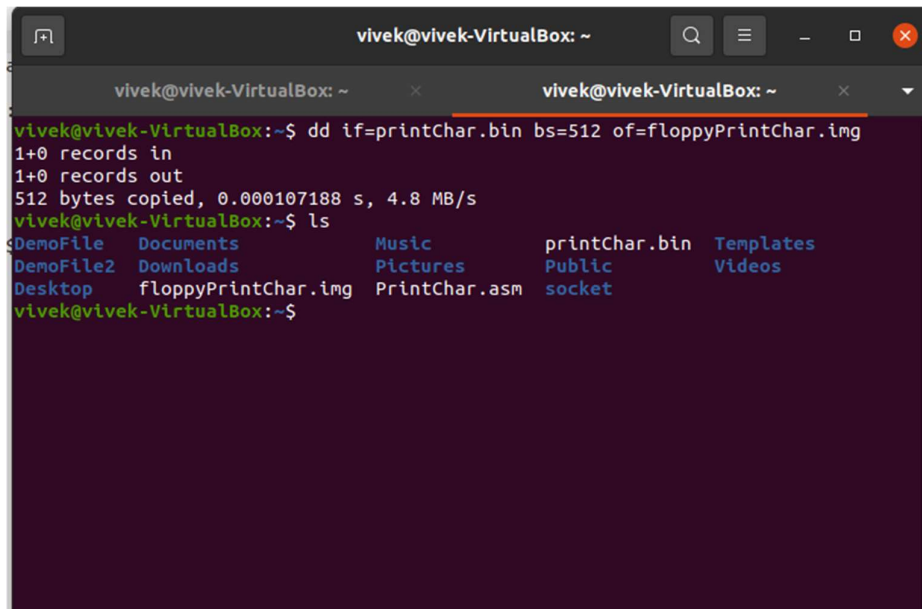
STEPS FOLLOWED:

1. Making .bin file



```
vivek@vivek-VirtualBox: ~
vivek@vivek-VirtualBox:~$ nasm PrintChar.asm -f bin -o printChar.bin
vivek@vivek-VirtualBox:~$ ls
DemoFile  Documents  Pictures    Public      Videos
DemoFile2 Downloads  PrintChar.asm socket
Desktop   Music      printChar.bin Templates
```

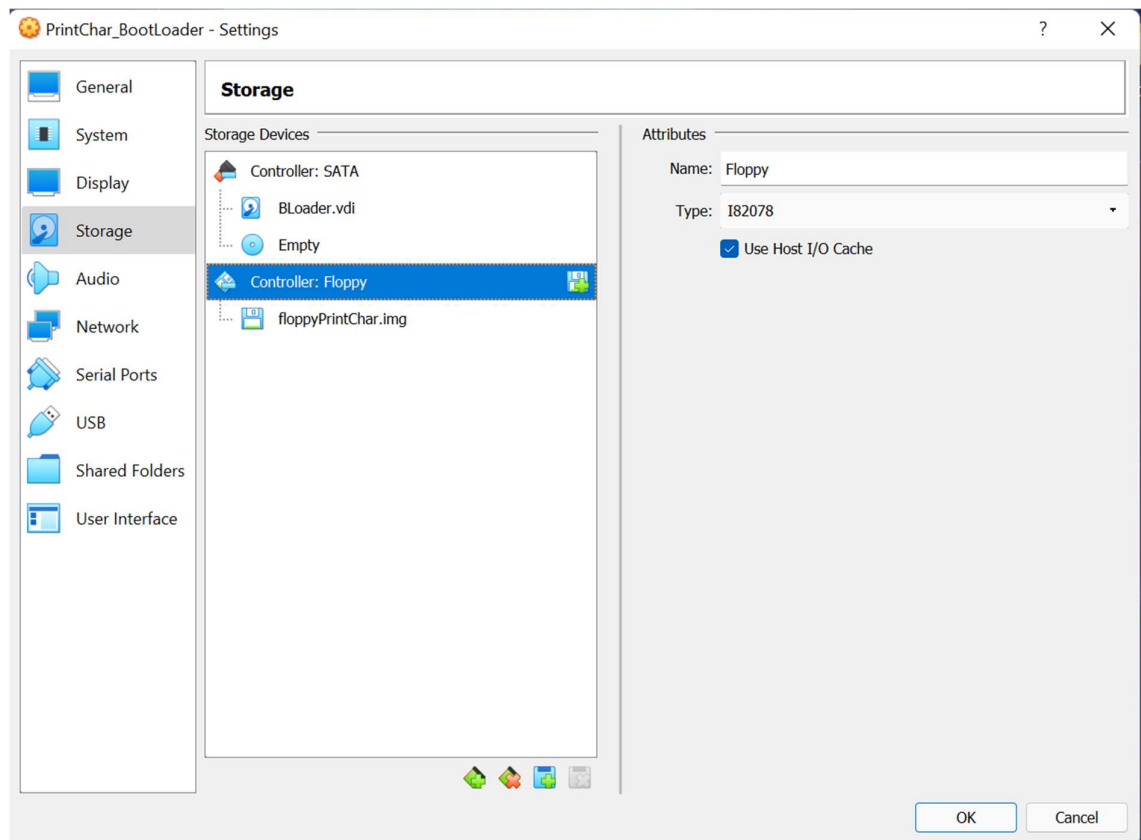
2. Making .img file



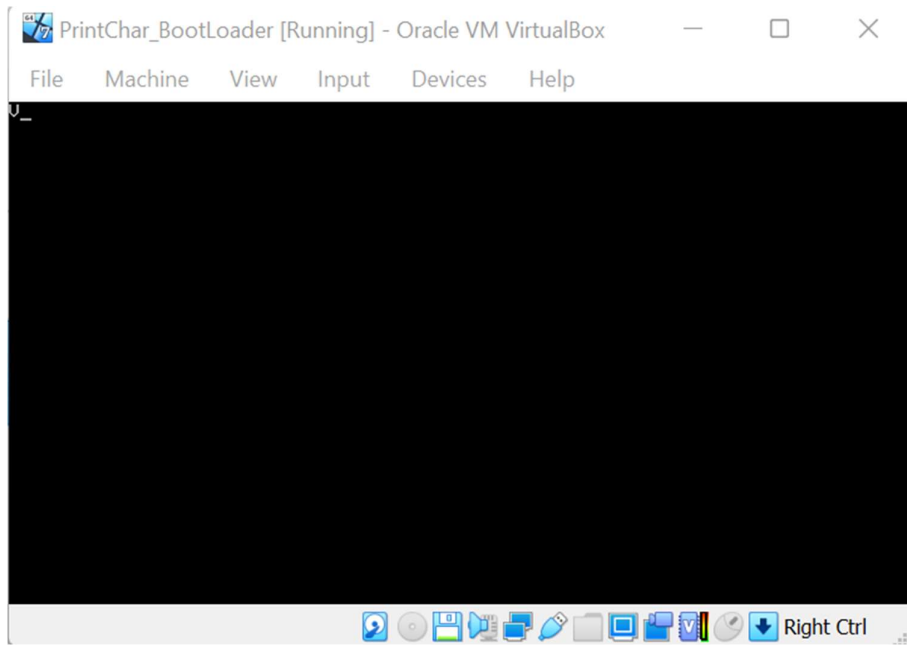
A terminal window titled "vivek@vivek-VirtualBox: ~" showing the execution of a command to create a floppy image. The command is `dd if=printChar.bin bs=512 of=floppyPrintChar.img`. The output shows that 1+0 records were written, totaling 512 bytes, at a speed of 4.8 MB/s. Below the command output, the `ls` command is run, displaying a directory listing of the current directory.

```
vivek@vivek-VirtualBox: ~  
vivek@vivek-VirtualBox: ~  
vivek@vivek-VirtualBox:~$ dd if=printChar.bin bs=512 of=floppyPrintChar.img  
1+0 records in  
1+0 records out  
512 bytes copied, 0.000107188 s, 4.8 MB/s  
vivek@vivek-VirtualBox:~$ ls  
DemoFile  Documents  Music      printChar.bin  Templates  
DemoFile2 Downloads  Pictures   Public         Videos  
Desktop   floppyPrintChar.img  PrintChar.asm  socket  
vivek@vivek-VirtualBox:~$
```

3. Attaching Floppy image to new virtual machine



OUTPUT:



PROGRAM 3: Boot loader that Prints a Sentence

CODE:

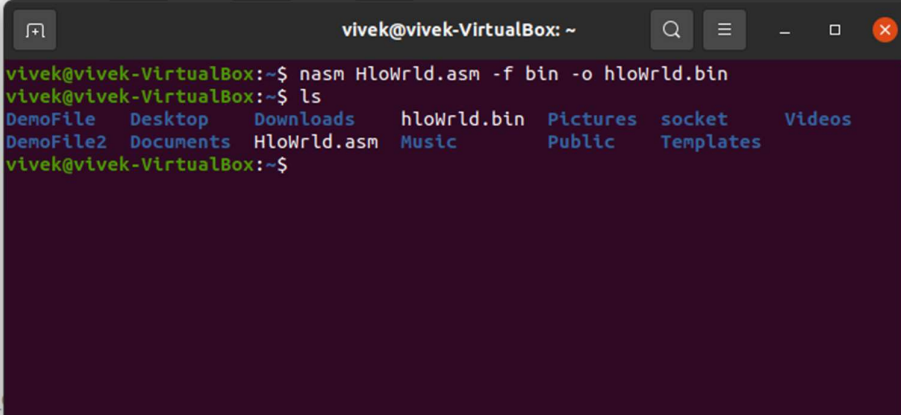


```
1 [BITS 16]
2 [ORG 0x7c00]
3 MOV SI,HelloString
4 CALL PrintString
5 JMP $
6 PrintCharacter:
7 MOV AH,0x0E
8 MOV BH,0x00
9 MOV BL,0x07e
10 INT 0x10
11 RET
12 PrintString:
13 next_character:
14 MOV AL,[SI] is one letter
15 INC SI
16 OR AL,AL
17 JZ exit_function
18 CALL PrintCharacter
19 JMP next_character
20 exit_function:
21 RET
22
23 HelloString db '20BCE1014 Vivek Singh',0
24 TIMES 510-($-$$) db 0
25 DW 0xAA55
```

Plain Text ▾ Tab Width: 8 ▾ Ln 25, Col 10 ▾ INS

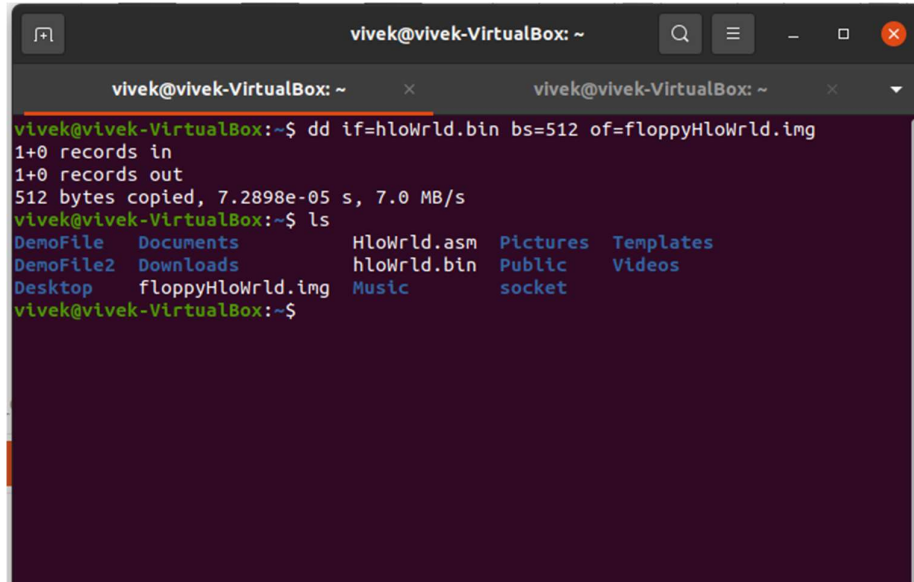
STEPS FOLLOWED:

1. Making .bin file



```
vivek@vivek-VirtualBox: ~
vivek@vivek-VirtualBox:~$ nasm HloWrld.asm -f bin -o hloWrld.bin
vivek@vivek-VirtualBox:~$ ls
DemoFile Desktop Downloads hloWrld.bin Pictures socket Videos
DemoFile2 Documents HloWrld.asm Music Public Templates
vivek@vivek-VirtualBox:~$
```

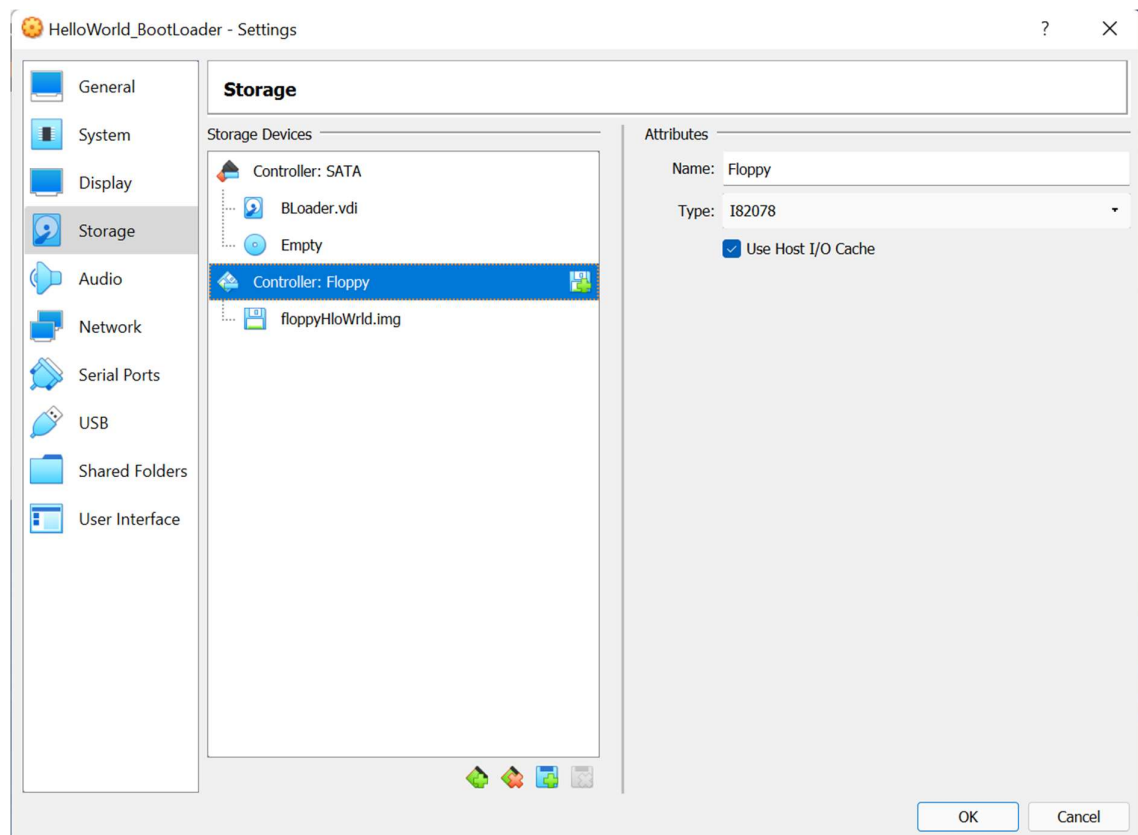
2. Making .img file



A terminal window titled "vivek@vivek-VirtualBox: ~" showing the execution of a command to create a floppy disk image. The command is `dd if=hloWrld.bin bs=512 of=floppyHloWrld.img`. The output shows that 1+0 records were copied, resulting in a 7.0 MB file. Following the command, a `ls` command is executed, displaying a directory listing of the current directory.

```
vivek@vivek-VirtualBox: ~  
vivek@vivek-VirtualBox:~$ dd if=hloWrld.bin bs=512 of=floppyHloWrld.img  
1+0 records in  
1+0 records out  
512 bytes copied, 7.2898e-05 s, 7.0 MB/s  
vivek@vivek-VirtualBox:~$ ls  
DemoFile  Documents      HloWrld.asm  Pictures  Templates  
DemoFile2 Downloads      hloWrld.bin  Public    Videos  
Desktop   floppyHloWrld.img Music         socket
```

3. Attaching Floppy image to new virtual machine



OUTPUT:

