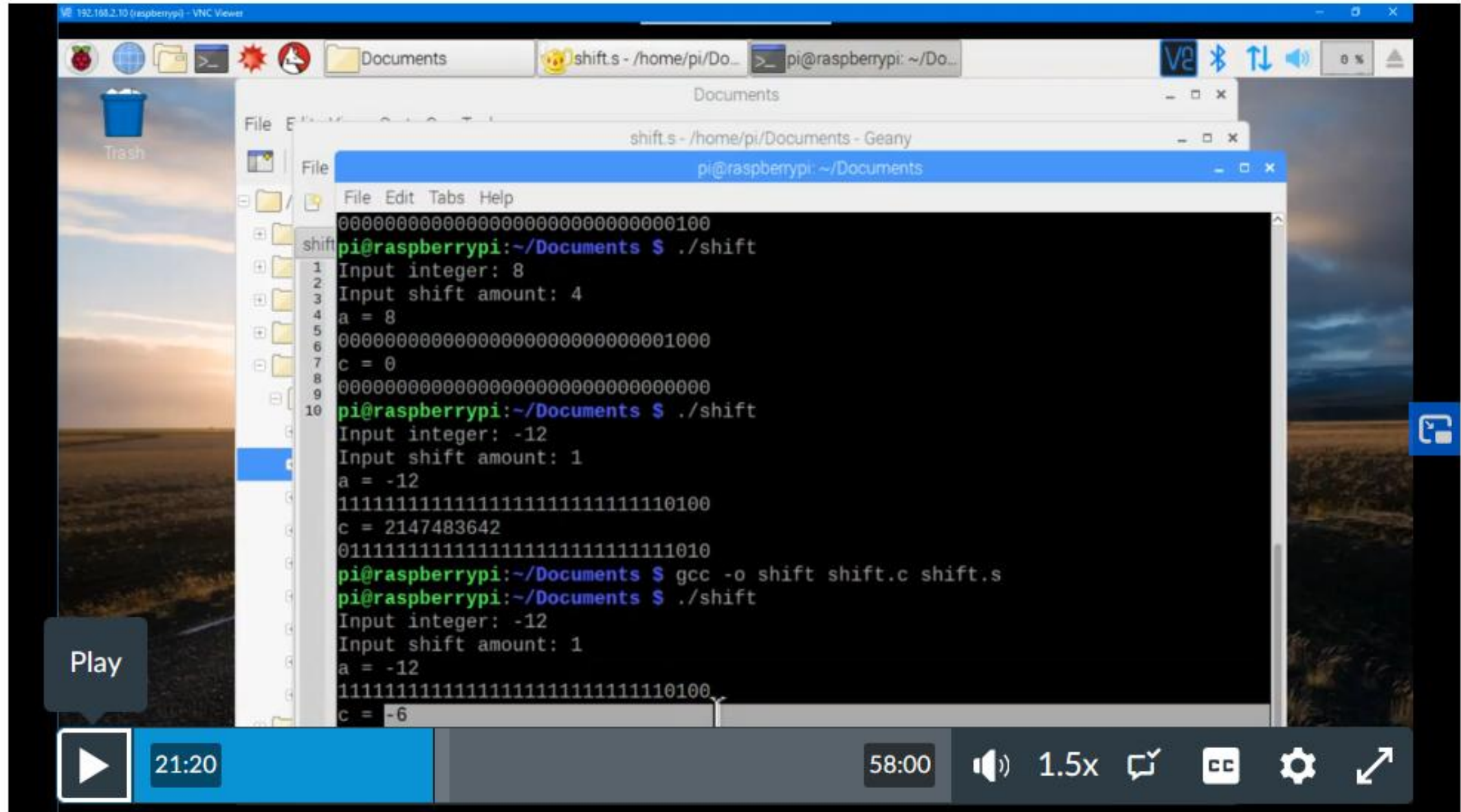


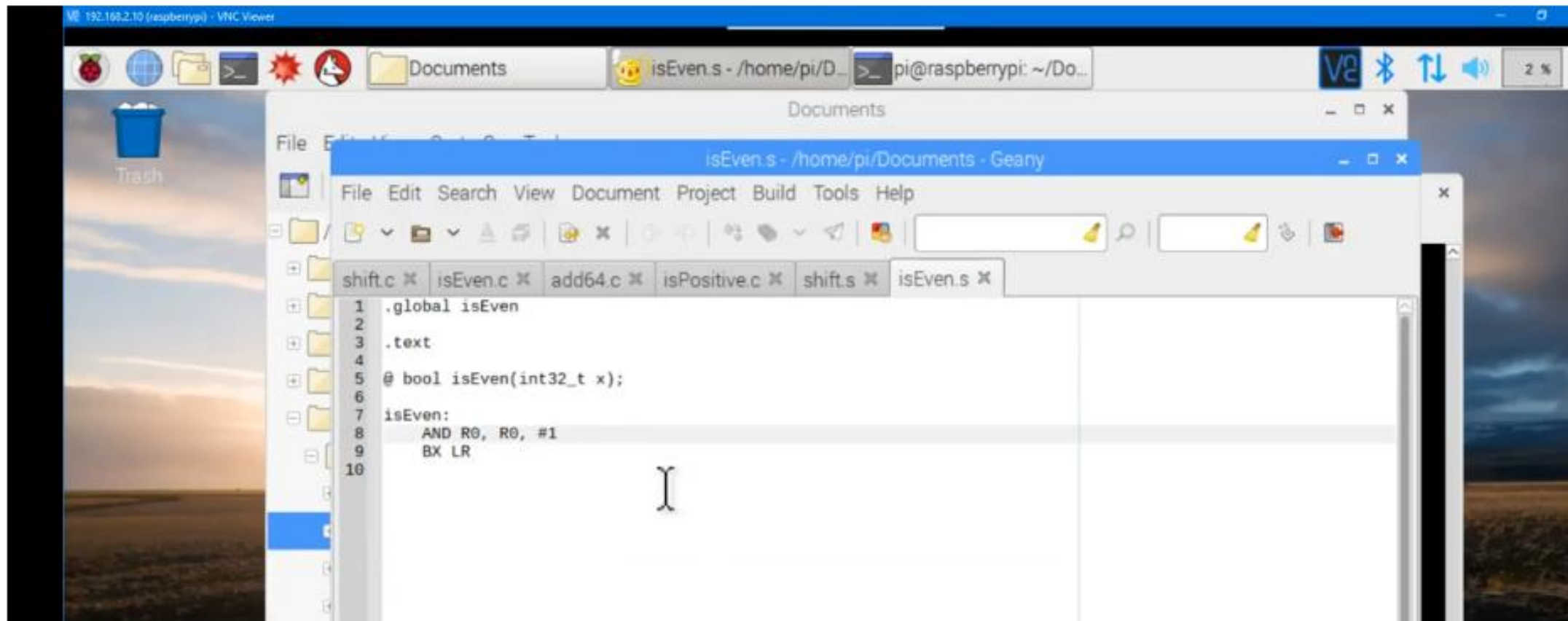
4. Shifts, Masks, 64-Bit Values

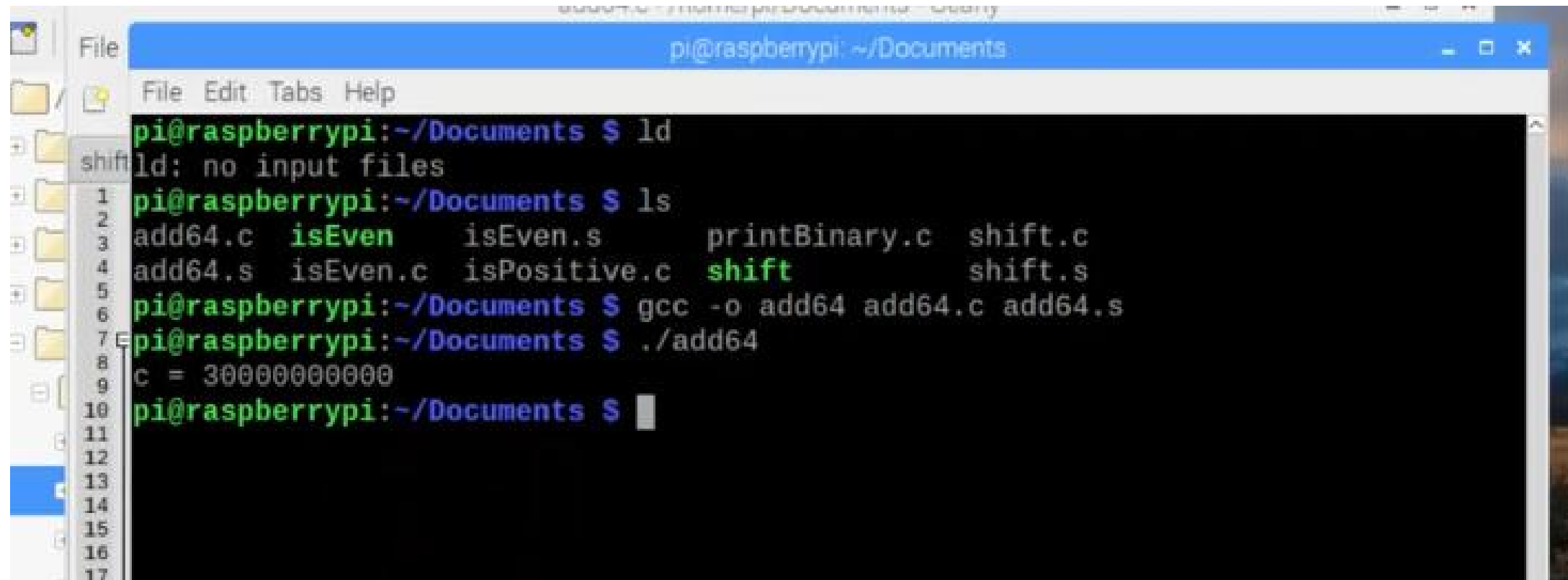
Please be cautious with your audio: the pre-set volume levels in Canvas Studio are very loud.



4. Shifts, Masks, 64-Bit Values

Please be cautious with your audio: the pre-set volume levels in Canvas Studio are very loud.





```
pi@raspberrypi: ~/Documents
File Edit Tabs Help
pi@raspberrypi:~/Documents $ ld
ld: no input files
pi@raspberrypi:~/Documents $ ls
add64.c  isEven  isEven.s  printBinary.c  shift.c
add64.s  isEven.c  isPositive.c  shift  shift.s
pi@raspberrypi:~/Documents $ gcc -o add64 add64.c add64.s
pi@raspberrypi:~/Documents $ ./add64
c = 300000000000
pi@raspberrypi:~/Documents $
```

File Edit Search View Document Project Build Tools Help



asm-1.s X

File E

pi@ra

asm-1

pi@ra

pi@ra

pi@ra

Hello

pi@ra

```
1 .global _start
2
3 _start:
4     MOV R7, #4 @ Syscall numbers |
5     MOV R0, #1 @ stdout is console
6     MOV R2, #19 @ string in 19 chars
7     LDR R1, =string @ Output string is located at "string"
8     SWI 0
9
10 _exit:
11     MOV R7, #1
12     SWI 0
13
14 .data
15 string:
16 .ascii "Hello World String\n"
17
```

File Edit Search View Document Project Build Tools Help



asm-1.s ✕ asm-2.s ✕

```
1  .global _start
2
3  _start:
4  _read:
5      MOV R7, #3 @ Syscall - read data
6      MOV R0, #0 @ stdin - keyboard
7      MOV R2, #5 @ read in five bytes
8      LDR R1, =string
9      SWI 0
10
11 _write:
12     MOV R7, #4 @ Syscall numbers
13     MOV R0, #1 @ stdout is console
14     MOV R2, #19 @ string in 19 chars
15     LDR R1, =string @ Output string is located at "string"
16     SWI 0
17
18 _exit:
19     MOV R7, #1
20     SWI 0
21
22 .data
23 string:
24 .ascii "Hello World String\n"
25
```

pi@raspberrypi: ~/Documents

File Edit Tabs Help

```
pi@raspberrypi:~/Documents $ ls
```

```
asm-1.s
```

```
pi@raspberrypi:~/Documents $ as -o asm-1.o asm-1.s
```

```
pi@raspberrypi:~/Documents $ ld -o asm-1 asm-1.o
```

```
pi@raspberrypi:~/Documents $ ./asm-1
```

```
Hello World String
```

```
pi@raspberrypi:~/Documents $ as -o asm-2.o asm-2.s
```

```
pi@raspberrypi:~/Documents $ ld -o asm-2 asm-2.o
```

```
pi@raspberrypi:~/Documents $ ./asm-2
```

```
something
```

```
some World String
```

```
pi@raspberrypi:~/Documents $ hing
```

```
bash: hing: command not found
```

```
pi@raspberrypi:~/Documents $
```