Define a pointer initialized with string constant. Observe using gdb, the address where pointer is stored, the address contained the pointer where the string is stored. Observe are they in different areas of data storage classes (stack, data section etc.).

```c
// observe layout of data in memory using gdb

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



int main()
{
char *str="hello";
printf("%s",str);
return 0;
}
```

Observe where data is stored

```
Breakpoint 1, main () at program1.c:10
10        char *str="hello";
(gdb) p &str
$1 = (char **) 0x7fffffffdfe8
```

```
0x7fffffffdfe8: 0 '\000'        0 '\000'        0 '\000'        0 '\000'        0 '\000'        0 '\000'
gdb) info proc mappings
rocess 176794
apped address spaces:

        Start Addr          End Addr       Size    Offset  Perms  objfile
    0x555555554000    0x555555555000     0x1000       0x0  r--p   /home/student/prog1
    0x555555555000    0x555555556000     0x1000    0x1000  r-xp   /home/student/prog1
    0x555555556000    0x555555557000     0x1000    0x2000  r--p   /home/student/prog1
    0x555555557000    0x555555558000     0x1000    0x2000  r--p   /home/student/prog1
    0x555555558000    0x555555559000     0x1000    0x3000  rw-p   /home/student/prog1
    0x7ffff7c00000    0x7ffff7c28000    0x28000       0x0  r--p   /usr/lib/x86_64-linux-gnu/libc.so.6
    0x7ffff7c28000    0x7ffff7dbd000   0x195000    0x28000  r-xp   /usr/lib/x86_64-linux-gnu/libc.so.6
    0x7ffff7dbd000    0x7ffff7e15000    0x58000   0x1bd000  r--p   /usr/lib/x86_64-linux-gnu/libc.so.6
    0x7ffff7e15000    0x7ffff7e16000     0x1000   0x215000  ---p   /usr/lib/x86_64-linux-gnu/libc.so.6
    0x7ffff7e16000    0x7ffff7e1a000     0x4000   0x215000  r--p   /usr/lib/x86_64-linux-gnu/libc.so.6
    0x7ffff7e1a000    0x7ffff7e1c000     0x2000   0x219000  rw-p   /usr/lib/x86_64-linux-gnu/libc.so.6
    0x7ffff7e1c000    0x7ffff7e29000     0xd000       0x0  rw-p
    0x7ffff7fa7000    0x7ffff7faa000     0x3000       0x0  rw-p
    0x7ffff7fbb000    0x7ffff7fbd000     0x2000       0x0  rw-p
    0x7ffff7fbd000    0x7ffff7fc1000     0x4000       0x0  r--p   [vvar]
    0x7ffff7fc1000    0x7ffff7fc3000     0x2000       0x0  r-xp   [vdso]
    0x7ffff7fc3000    0x7ffff7fc5000     0x2000       0x0  r--p   /usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2
    0x7ffff7fc5000    0x7ffff7fef000    0x2a000    0x2000  r-xp   /usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2
    0x7ffff7fef000    0x7ffff7ffa000     0xb000   0x2c000  r--p   /usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2
    0x7ffff7ffb000    0x7ffff7ffd000     0x2000   0x37000  r--p   /usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2
    0x7ffff7ffd000    0x7ffff7fff000     0x2000   0x39000  rw-p   /usr/lib/x86_64-linux-gnu/ld-linux-x86-64.so.2
    0x7ffffffde000    0x7ffffffff000    0x21000       0x0  rw-p   [stack]
0xffffffffff600000 0xffffffffff601000     0x1000       0x0  --xp   [vsyscall]
```

Printing literals

```
(gdb) next
11        printf("%s",str);
(gdb) next
12        return 0;
(gdb) x/s str
0x555555556004: "hello"
(gdb) p str
$3 = 0x555555556004 "hello"
```