Digital Design Verification

Assignment # 04

POINTERS

Submitted by:

Name:	**Khalil Rehman**
Instructor:	**Hira Sohail**

Date:
July 22, 2025

NUST Chip Design Centre (NCDC), Islamabad, Pakistan

Question1: How would we initialize p so that it points to x?

Answer:

int x = 100; //variable x

int *p = &x; // p is a pointer to an integer (`int *p`), so it can hold that address
//`&x` gives the address of x

Question2: What would happen if we passed p instead of *p to printf?

Answer:

//Code
int x = 10;
int *p = &x;

printf("%d", p);

It would print the memory address (or cause a warning/error if %d is used). Use %p to print p, or %d to print `*p`.

Question3: What would happen if we dereferenced a pointer that had the value of NULL?

Answer:

It would cause a segmentation fault (crash the program).

Question4:

Output:

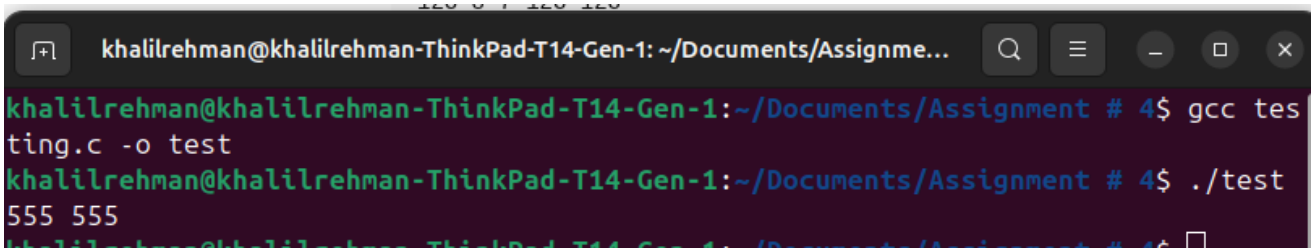
4.1. Update t to point to c. Use a pointer dereference to change the value of c to 555. Verify that it worked by adding a printout. Does this change any of the other values?

Answer:

//Code

```
//No change in other values
t = &c;
*t = 555;
printf("%d %d\n", c, *t);
```

Output:



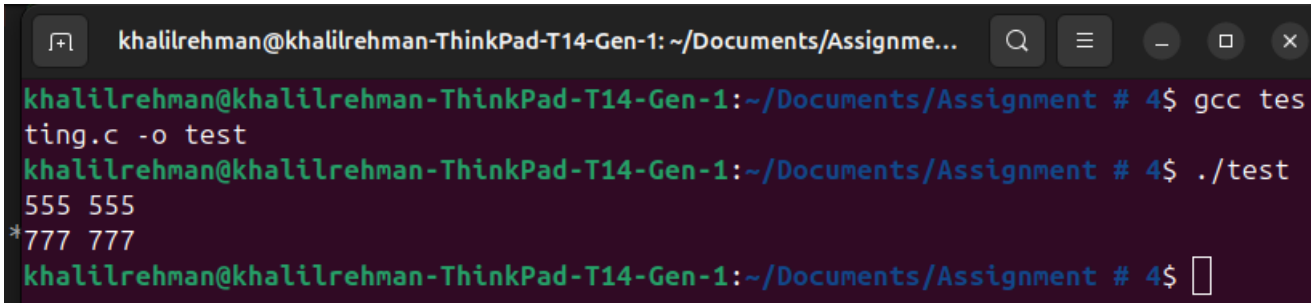
4.2. Change the value of c again using a direct assignment. Verify that the pointer t still points to the value by printing the result of dereferencing it.

Answer:

//Code

```
c = 777;
printf("%d %d\n", c, *t);
```

Output:



Question5: Would happen if you tried to execute the following code? How could you fix it?

//Code

```
int *v = &t;
printf("%d\n", *v);
```

Answer:

It causes a type mismatch and print garbage value or crash.

//Fix

```
int **v = &t;
printf("%d\n", **v);
```

Output: