

Stack vs Heap in C programming

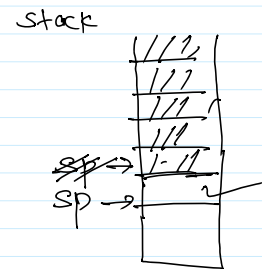
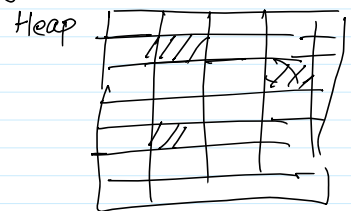
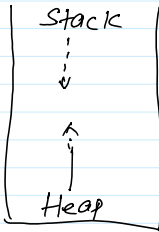
Both Stack & Heap are areas of Memory used by a C program, but both are managed differently.

STACK

1. Used mainly for local variables & fun calls.
2. Memory is managed automatically
3. Memory allocation is faster on stack
4. Limited size
5. Memory is automatically released when fun returns or when we exit from any block

HEAP

- ① Used for dynamically memory allocation
- ② Memory is managed using functions malloc(), calloc(), realloc(), free()
- ③ Memory allocation is slow
- ④ Usually larger
- ⑤ Memory remains allocated until free() is called.
→ Memory is deallocated when program terminate



Example:-

```
int main()
{
    int x = 10; // stack
    int *ptr = malloc(sizeof(int)); // 4
    *ptr = 100; ✓
    printf("%d", x); // → 10
    printf("%d", *ptr); // → 100
    free(ptr); // if we do not free memory then it causes Memory Leak.
    return 0;
}
```

