

Rules of the game

1. Each new object is stored on the **heap** at an **address**.



2. Each **variable name** refers to a **heap address**.



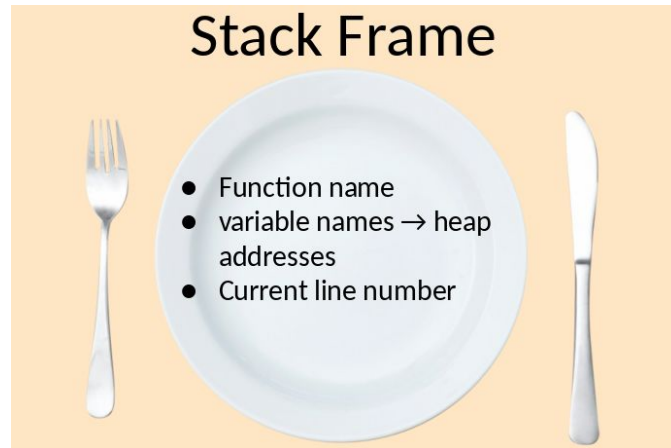
3. **Many** variable names may refer to **one** heap address.



4. Byref function parameter is like a variable name.
5. Each **function call** creates a **stack frame**.



6. Each stack frame contains **function name**, **variable names** → **heap addresses**, and **current line number**



7. Current line number increases by one, unless after a negative if statement.
8. When **function call returns**, its **frame** is **destroyed** and the stack frame directly under it resumes at its current line.

Stack Frames

| | | |
|---|---|---|
| <div>Function Name</div> <div>varname -> address</div> <div>Current Line</div> | <div>Function Name</div> <div>varname -> address</div> <div>Current Line</div> | <div>Function Name</div> <div>varname -> address</div> <div>Current Line</div> |
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Heap

| | | |
|-----------|-----------|-----------|
| Address 0 | Address 1 | Address 2 |
| Address 3 | Address 4 | Address 5 |
| Address 6 | Address 7 | Address 8 |

Objects

| | | | | | | | | |
|--|------|-------|--|------|-------|--|------|-------|
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