

project/

```
|— main.tf      🖱️ Root (controller)
|— variables.tf
|— outputs.tf
|— modules/
|   |— vpc/
|   |   |— main.tf
|   |   |— variables.tf
|   |   |— outputs.tf
|   |— subnet/
|   |   |— main.tf
|   |   |— variables.tf
|   |   |— outputs.tf
|   |— sg/
|   |   |— main.tf
|   |   |— variables.tf
|   |   |— outputs.tf
```

✓ Root main.tf — The Controller / Caller

- It assigns values to variables (like VPC CIDR, Subnet IP, SG name, etc.).
- It calls each module (VPC, Subnet, SG, etc.).
- It passes the variable values into those modules.

📄 Call VPC Module

```
module "vpc" {
  source      = "../modules/vpc"
  cidr_block = "10.0.0.0/16" # assigned here
  name       = "Kamaraj-VPC" # assigned here
}
```

📄 Call Subnet Module

```
module "subnet" {
  source      = "../modules/subnet"
  vpc_id     = module.vpc.vpc_id # getting from vpc module output
  cidr       = "10.0.1.0/24"    # assigned here
  az         = "us-east-1a"
  name       = "PublicSubnet"
}
```

Root main.tf

↓ (passes inputs)

modules/vpc/main.tf

↓ (creates VPC, returns ID)

Root main.tf

↓ (sends that ID to next module)

modules/subnet/main.tf

↓ (creates subnet)

✓ Module main.tf — The Worker / Receiver

Each module's main.tf just **receives** those values from root main.tf through variables.tf.

Example (modules/vpc/main.tf):

```
resource "aws_vpc" "this" {
  cidr_block = var.cidr_block      # received from root
  tags = {
    Name = var.name                # received from root
  }
}
```

variables.tf in that module:

```
variable "cidr_block" {}
variable "name" {}
```

✓ Outputs Flow Back

If your module gives an **output** (like VPC ID),
you can **reuse** it in another module via the root main.tf.
Example:

```
module "subnet" {
  vpc_id = module.vpc.vpc_id      # reusing output from vpc module
}
```

💡 So the flow is:

Root main.tf → sends inputs → Module main.tf → creates resource → sends outputs → back to Root main.tf

File	Role	Data Flow
Root main.tf	Calls modules and assigns variable values	🔄 Sends inputs
Module variables.tf	Declares what inputs are expected	⬇️ Receives values
Module main.tf	Uses those inputs to create AWS resources	⚙️ Builds resources
Module outputs.tf	Sends useful info (like IDs) back	⬆️ Returns outputs

□ Simple Concept

- 👉 Root main.tf = Caller (Boss / Manager)
- 👉 Module main.tf = Worker (Employee)

💎 So, who calls whom?

- ✓ Root main.tf is calling the worker modules
- ✗ Worker modules do **not** call the root.