



April 18, 2025

## 1

### . Docstrings

Use triple quotes to explain what a function, class, or script does.

```
def scan_ports(ip):  
    """Scan all TCP ports on a given IP and return open ports."""
```

## 2

### . Meaningful Names

Avoid vague names like x, y, data. Be descriptive.

```
def get_user_credentials():  
    ...
```

## 3

### . Comments

Explain why something is done, not what is obviously being done.

```
# Retry the request if it times out  
response = send_request(retry=True)
```

## 4

### . Formatting

Follow PEP 8: 4 spaces per indent, and keep lines under 79 characters.

Use auto-formatting tools like Black or autopep8.

## 5

### . Constants

Use *ALL\_CAPS* for values that shouldn't change.

```
MAX_ATTEMPTS = 5
```

## 6

### . Avoid Magic Numbers

Give important numbers a name so the code is readable.

```
DEFAULT_TIMEOUT = 10
```

## 7

### . List Comprehensions

Use list comprehensions for concise loops.

```
ports = [p for p in range(1024) if is_open(p)]
```

## 8

### . Use 'with' for File Access

Using 'with' ensures the file is closed automatically.

```
with open("log.txt") as f:
    data = f.read()
```

## 9

### . Try/Except for Error Handling

Handle errors without crashing your script.

```
try:
    connect_to_db()
except ConnectionError:
    print("DB unreachable.")
```

## 1

### 0. 'if $name == 'main'$ ,

Keeps your script modular and reusable.

```
def main():
    run_scan()

if __name__ == "__main__":
    main()
```