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Course	Software Engineering
Lab	5
Aim	Static Analysis Tool
Language	Python
Tool	mypy

1.

```
84 for site in sites:
85     t = Thread(target=site.send_request)
86     threads.append(t)
87
88 # Start each thread
89 for thread in threads:
90     thread.start()
91
92 # Wait for each thread to finish executing
93 for thread in threads:
94     thread.join()
```

Failed (exit code: 1) (3469 ms)

main.py:84: error: Name "Thread" is not defined [name-defined]  
Found 1 error in 1 file (checked 1 source file)

The code is generating errors because of not importing the module that is necessary. This is a false negative as we have not imported the required module. As we import that the code works fine.

2.

```
81 sites = [Site(i) for i in range()]
82
83 # Create a list of threads, where each thread runs the 'send_request' method for a different Site object
84 threads = []
85 for site in sites:
86     t = Thread(target=site.send_request)
87     threads.append(t)
88
89 # Start each thread
90 for thread in threads:
91     thread.start()
92
93 # Wait for each thread to finish executing
94 for thread in threads:
95     thread.join()
```

Failed (exit code: 1) (3467 ms)

main.py:81: error: All overload variants of "range" require at least one argument [call-overload]  
main.py:81: note: Possible overload variants:  
main.py:81: note: def \_\_init\_\_(self, SupportsIndex, /) -> range  
main.py:81: note: def \_\_init\_\_(self, SupportsIndex, SupportsIndex, SupportsIndex = ..., /) -> range  
Found 1 error in 1 file (checked 1 source file)

The code is generating errors because of not giving arguments that are necessary. This is a false negative as we have given the arguments that is mandatory.

3.

```
17 ▾ if choice == :
18     num1 = input("Enter first number: ")
19     num2 = input("Enter second number: ")
20     client_socket.sendall(num1.encode())
21     client_socket.sendall(num2.encode())
22 ▾ elif choice == '2':
23     num = input("Enter number for factorial: ")
24     client_socket.sendall(num.encode())
25 ▾ elif choice == '3':
26     num = input("Enter decimal number for binary: ")
27     client_socket.sendall(num.encode())
28 ▾ else:
29     print("Invalid choice")
30     client_socket.close()
31
32 # Receive the result from the server
33 result = client_socket.recv(1024).decode()
34 print("Result from server: ", result)
35
36 # Close the socket
37 print("Client Disconnect")
38 client_socket.close()
```

Failed (exit code: 2) (1049 ms)

---

main.py:17: error: invalid syntax; you likely need to run mypy using Python 3.11 or newer [syntax]  
Found 1 error in 1 file (errors prevented further checking)

This code is generating errors because the variable is not compared with anything. This is a false negative as in we are required to compare with something.

4.

```
27 client_socket.sendalling(num.encode())
28 else:
29     print("Invalid choice")
30     client_socket.close()
31
32 # Receive the result from the server
33 result = client_socket.recv(1024).decode()
34 print("Result from server: ", result)
35
36 # Close the socket
37 print("Client Disconnect")
38 client_socket.close()
```

Failed (exit code: 1) (3218 ms)

---

main.py:27: error: "socket" has no attribute "sendalling" [attr-defined]  
Found 1 error in 1 file (checked 1 source file)

This code is generating errors because the attribute is not defined. This is false negative as there are no inbuilt attributes.

5.

```
32 for i in range(1, num+1)
33     result *= i
34     result = str(result)
35 elif choice == '3':
36     print("Client has selected third option\n")
37     num = int(client_socket.recv(1024).decode())
38     result = bin(num)
39 else:
40     result = "Invalid choice"
41
42 # Send the result back to the client
43 client_socket.sendall(result.encode())
44 finally:
45     # Close the client socket
46     print("Server Disconnet")
47     client_socket.close()
```

Failed (exit code: 2) (1277 ms)

---

main.py:32: error: expected ':' [syntax]  
Found 1 error in 1 file (errors prevented further checking)

The code is generating errors because colon is expected at the end of condition. This is false negative as we have make a mistake.