

תרגיל 1:

1. צירפנו את הקבצים : atom_supplier.c , atom_warehouse.c , Makefile
בנוסף מצורף קובץ txt עם דו"ח ה coverage
2. הרצת makefile:

```
nitzan@DESKTOP-QV8DHHK:~/task2/task2/q1$ make
gcc -Wall -Wextra -g --coverage -o atom_warehouse atom_warehouse.c
gcc -Wall -Wextra -g --coverage -o atom_supplier atom_supplier.c
```

3. נריץ את השרת והלקוח כל אחד בטרמינל נפרד:

שרת:

```
nitzan@DESKTOP-QV8DHHK:~/task2/task2/q1$ ./atom_warehouse 12345
Server listening on port 12345...
Type 'shutdown' to stop the server.
```

לקוח:

```
nitzan@DESKTOP-QV8DHHK:~/task2/task2/q1$ ./atom_supplier 127.0.0.1 12345
Connected to server 127.0.0.1 on port 12345

=== ATOM SUPPLIER MENU ===
1. ADD CARBON
2. ADD OXYGEN
3. ADD HYDROGEN
4. QUIT
Your choice: █
```

דוגמת שימוש בלקוח:

```
Your choice: 1
Enter amount of CARBON to add (max 1000000000000000000)
: 20
Command sent: ADD CARBON 20
```

ובצד הלקוח:

```
New connection from 127.0.0.1 on socket 4
Added 20 CARBON.
Current warehouse status:
CARBON: 20
OXYGEN: 0
HYDROGEN: 0
```

סגירת לקוח:

```
Your choice: 4
Disconnecting from server.
Connection closed.
nitzan@DESKTOP-QV8DHHK:~/task2/task2/q1$ █
```

סגירת שרת:

```
shutdown
Shutdown command received. Closing server.
```

4. בדיקת כיסוי קוד (gcov):

```
nitzan@DESKTOP-QV8DHHK:~/task2/task2/q1$ make coverage
gcov *.c
File 'atom_supplier.c'
Lines executed:74.29% of 105
Creating 'atom_supplier.c.gcov'

File 'atom_warehouse.c'
Lines executed:71.43% of 91
Creating 'atom_warehouse.c.gcov'

Lines executed:72.96% of 196
```

5. נבדוק אילו שורות לא כוסו:

```
nitzan@DESKTOP-QV8DHHK:~/task2/task2/q1$ grep -n "#####" *.gcov
atom_supplier.c.gcov:48: #####: 47: return 0; // Input error
atom_supplier.c.gcov:86: #####: 85: error("Error creating socket");
atom_supplier.c.gcov:87: #####: 86: continue;
atom_supplier.c.gcov:91: #####: 90: error("Error connecting to server");
atom_supplier.c.gcov:92: #####: 91: close(sockfd);
atom_supplier.c.gcov:93: #####: 92: continue;
atom_supplier.c.gcov:100: #####: 99: fprintf(stderr, "Failed to connect to server.\n");
atom_supplier.c.gcov:101: #####: 100: freeaddrinfo(servinfo);
atom_supplier.c.gcov:102: #####: 101: exit(EXIT_FAILURE);
atom_supplier.c.gcov:166: #####: 165: error("Error checking server status before sending");
atom_supplier.c.gcov:167: #####: 166: break;
atom_supplier.c.gcov:172: #####: 171: error("Error sending data to server");
atom_supplier.c.gcov:173: #####: 172: break;
atom_supplier.c.gcov:179: #####: 178: printf("Notice: server closed the connection after your command was sent.\n");
atom_supplier.c.gcov:180: #####: 179: break;
atom_supplier.c.gcov:182: #####: 181: error("Error checking server status after sending");
atom_supplier.c.gcov:183: #####: 182: break;
atom_warehouse.c.gcov:40: #####: 39: printf("Error: amount too large, max allowed per command is %llu.\n", MAX_ATOMS);
atom_warehouse.c.gcov:66: #####: 65: printf("Unknown atom type: %s\n", type);
atom_warehouse.c.gcov:67: #####: 66: return;
atom_warehouse.c.gcov:70: #####: 69: printf("Invalid command: %s\n", cmd);
atom_warehouse.c.gcov:71: #####: 70: return;
atom_warehouse.c.gcov:100: #####: 99: error("socket error");
atom_warehouse.c.gcov:101: #####: 100: exit(1);
atom_warehouse.c.gcov:115: #####: 114: error("listen");
atom_warehouse.c.gcov:116: #####: 115: exit(1);
atom_warehouse.c.gcov:130: #####: 129: error("select");
atom_warehouse.c.gcov:131: #####: 130: exit(1);
atom_warehouse.c.gcov:141: #####: 140: error("accept");
atom_warehouse.c.gcov:167: #####: 166: error("recv");
```

ניתן לראות שהשורות שלא כיסינו הם של שגיאות שלא נכנסו אליהן כגון יצירת sockets וכן הלאה.

=== Q1 Code Coverage Report ===

Generated on:

Lines executed:89.52% of 105

Lines executed:85.71% of 91

Lines executed:87.76% of 196

Coverage files (.gcov) generated

atom_supplier.c.gcov

atom_warehouse.c.gcov