

Part 1:

Task 1.1:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part1> go run main.go
*** Three Counters ===
Counter C: 1
Counter A: 1
Counter B: 1
Counter A: 2
Counter C: 2
Counter B: 2
Counter B: 3
Counter A: 3
Counter C: 3
Counter A finished!
Counter B: 4
Counter C: 4
Counter C: 5
Counter B finished!
Counter C finished!
All done!
```

Task 1.2:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part1> go run .\Task1.2.go
*** Fetching Websites ===
Fetching Twitter.com...
Fetching Google.com...
Fetching Amazon.com...
Fetching Facebook.com...
✓ Got data from Twitter.com
✓ Got data from Google.com
✓ Got data from Amazon.com
✓ Got data from Facebook.com

Completed in: 501.1194ms
```

Part 2:

Task 2.1:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part2> go run .\Task2.1.go
*** Concurrent Calculator ===
Numbers: [10 20 30 40 50]
Sum: 150
Average: 30.0
Time: 502.7163ms
```

### Task 2.2:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part2> go run .\Task2.2.go
--- Message Queue ---
Message 1 from Charlie
Message 1 from Alice
Message 1 from Bob
Message 2 from Charlie
Message 2 from Bob
Message 2 from Alice
Message 3 from Alice
Message 3 from Charlie
Message 4 from Charlie

All messages received!
```

### Part 3:

#### Task 3.1:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part3> go run .\Task3.1.go
--- File Downloader ---
Downloading archive.zip (6MB)...
Downloading song.mp3 (4MB)...
Downloading doc.pdf (5MB)...
Downloading video.mp4 (8MB)...
Downloading photo.jpg (2MB)...
✓ photo.jpg complete!
✓ song.mp3 complete!
✓ doc.pdf complete!
✓ archive.zip complete!
✓ video.mp4 complete!

✓ All downloads complete! (801.5715ms)
```

#### Task 3.2:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part3> go run .\Task3.2.go
--- Number Processor ---
Numbers: [1 2 3 4 5 6 7 8 9 10]
Evens: [2 4 6 8 10]
Odds: [1 3 5 7 9]
Squares: [1 4 9 16 25 36 49 64 81 100]

Time: 505.7338ms
```

Part 4:

Task 4.1:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part4> go run .\Task4.1.go
--- Search Race ---
Engine B won! (~200ms)
Results from Engine B for 'golang concurrency'
```

Part 5:

Task 5.1:

```
PS C:\Users\VUTHANHHUNG\Desktop\Netcen Pro\VuThanhNhan - ITITIU21267 - Lab2\Part5> go run .\Task5.1.go
--- Library Simulation ---
Library capacity: 30 students
Total students today: 100
Simulation: 1 second = 1 hour

Student 1 entered library, will study for 1 hours
Student 5 entered library, will study for 1 hours
Student 7 entered library, will study for 4 hours
Student 3 entered library, will study for 2 hours
Student 4 entered library, will study for 1 hours
Student 2 entered library, will study for 3 hours
Student 8 entered library, will study for 2 hours
Student 6 entered library, will study for 1 hours
Student 11 entered library, will study for 1 hours
Student 9 entered library, will study for 1 hours
Student 10 entered library, will study for 3 hours
Student 26 entered library, will study for 2 hours
Student 19 entered library, will study for 3 hours
Student 20 entered library, will study for 3 hours
Student 86 left library after 3 hours
Student 72 left library after 4 hours
Student 88 left library after 3 hours
Student 79 left library after 4 hours
Student 89 left library after 3 hours
Student 78 left library after 4 hours
Student 100 left library after 2 hours
Student 99 left library after 3 hours
Student 98 left library after 3 hours
Student 96 left library after 4 hours
Student 97 left library after 4 hours

--- Simulation Complete ---
Total students served: 100
Library was open for: 10 hours
Average wait time: 2.55 hours
Peak occupancy: 30 students
```