

Спочатку збільшуємо N в **геометричній** прогресії.

N = 10:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 10

Time using BIN
Writing time: 0
Reading time: 0
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 1

Time using TXT
Writing time: 0
Reading time: 0
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 0

Time using VECTOR
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 0

Total time: 1%
dunnaya@MacBook-Air-Dana helloworld %
```

N = 100:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 100

Time using BIN
Writing time: 1
Reading time: 1
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 2

Time using TXT
Writing time: 1
Reading time: 0
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 2

Time using VECTOR
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 0

Total time: 4%
dunnaya@MacBook-Air-Dana helloworld %
```

N = 1000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 1000

Time using BIN
Writing time: 5
Reading time: 3
Time adding products: 1
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 11

Time using TXT
Writing time: 7
Reading time: 5
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 0
Duration: 14

Time using VECTOR
Time adding products: 0
Time searching name: 0
Time searching quantity: 0
Time searching date: 0
Time searching all: 1
Duration: 1

Total time: 26%
dunnaya@MacBook-Air-Dana helloworld %
```

N = 10 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 10000

Time using BIN
Writing time: 30
Reading time: 20
Time adding products: 7
Time searching name: 0
Time searching quantity: 0
Time searching date: 1
Time searching all: 2
Duration: 61

Time using TXT
Writing time: 29
Reading time: 24
Time adding products: 2
Time searching name: 0
Time searching quantity: 0
Time searching date: 2
Time searching all: 3
Duration: 60

Time using VECTOR
Time adding products: 1
Time searching name: 1
Time searching quantity: 0
Time searching date: 3
Time searching all: 5
Duration: 6

Total time: 127%
dunnaya@MacBook-Air-Dana helloworld %
```

N = 100 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 100000

Time using BIN
Writing time: 130
Reading time: 117
Time adding products: 45
Time searching name: 4
Time searching quantity: 0
Time searching date: 12
Time searching all: 17
Duration: 311

Time using TXT
Writing time: 232
Reading time: 235
Time adding products: 18
Time searching name: 8
Time searching quantity: 0
Time searching date: 24
Time searching all: 34
Duration: 522

Time using VECTOR
Time adding products: 22
Time searching name: 13
Time searching quantity: 1
Time searching date: 37
Time searching all: 52
Duration: 74

Total time: 907%
○ dunnaya@MacBook-Air-Dana helloworld %
```

N = 120 000: (підставляємо значення,
щоб отримати 1 секунду)

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 120000

Time using BIN
Writing time: 150
Reading time: 139
Time adding products: 47
Time searching name: 5
Time searching quantity: 0
Time searching date: 14
Time searching all: 20
Duration: 358

Time using TXT
Writing time: 280
Reading time: 279
Time adding products: 21
Time searching name: 10
Time searching quantity: 0
Time searching date: 29
Time searching all: 41
Duration: 624

Time using VECTOR
Time adding products: 25
Time searching name: 16
Time searching quantity: 1
Time searching date: 44
Time searching all: 62
Duration: 88

Total time: 1070%
○ dunnaya@MacBook-Air-Dana helloworld %
```

Надалі збільшуємо N в **арифметичній** прогресії.

N = 240 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 240000

Time using BIN
Writing time: 282
Reading time: 278
Time adding products: 75
Time searching name: 10
Time searching quantity: 0
Time searching date: 29
Time searching all: 41
Duration: 681

Time using TXT
Writing time: 561
Reading time: 564
Time adding products: 41
Time searching name: 21
Time searching quantity: 1
Time searching date: 59
Time searching all: 82
Duration: 1253

Time using VECTOR
Time adding products: 49
Time searching name: 33
Time searching quantity: 3
Time searching date: 88
Time searching all: 125
Duration: 175

Total time: 2109%
○ dunnaya@MacBook-Air-Dana helloworld %
```

N = 360 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 360000

Time using BIN
Writing time: 420
Reading time: 418
Time adding products: 106
Time searching name: 16
Time searching quantity: 0
Time searching date: 44
Time searching all: 61
Duration: 1011

Time using TXT
Writing time: 836
Reading time: 835
Time adding products: 66
Time searching name: 31
Time searching quantity: 2
Time searching date: 88
Time searching all: 122
Duration: 1867

Time using VECTOR
Time adding products: 82
Time searching name: 46
Time searching quantity: 4
Time searching date: 133
Time searching all: 184
Duration: 266

Total time: 3144%
○ dunnaya@MacBook-Air-Dana helloworld %
```

N = 480 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 480000

Time using BIN
Writing time: 560
Reading time: 561
Time adding products: 123
Time searching name: 21
Time searching quantity: 1
Time searching date: 59
Time searching all: 82
Duration: 1332

Time using TXT
Writing time: 1123
Reading time: 1119
Time adding products: 87
Time searching name: 42
Time searching quantity: 2
Time searching date: 118
Time searching all: 164
Duration: 2502

Time using VECTOR
Time adding products: 98
Time searching name: 63
Time searching quantity: 11
Time searching date: 177
Time searching all: 251
Duration: 350

Total time: 4184%
o dunnaya@MacBook-Air-Dana helloworld %
```

N = 600 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 600000

Time using BIN
Writing time: 703
Reading time: 704
Time adding products: 155
Time searching name: 26
Time searching quantity: 1
Time searching date: 74
Time searching all: 102
Duration: 1671

Time using TXT
Writing time: 1424
Reading time: 1396
Time adding products: 115
Time searching name: 52
Time searching quantity: 3
Time searching date: 148
Time searching all: 204
Duration: 3151

Time using VECTOR
Time adding products: 80
Time searching name: 83
Time searching quantity: 7
Time searching date: 222
Time searching all: 312
Duration: 393

Total time: 5215%
o dunnaya@MacBook-Air-Dana helloworld %
```

N = 720 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 720000

Time using BIN
Writing time: 843
Reading time: 843
Time adding products: 171
Time searching name: 31
Time searching quantity: 1
Time searching date: 88
Time searching all: 122
Duration: 1987

Time using TXT
Writing time: 1685
Reading time: 1685
Time adding products: 129
Time searching name: 65
Time searching quantity: 3
Time searching date: 178
Time searching all: 247
Duration: 3759

Time using VECTOR
Time adding products: 171
Time searching name: 93
Time searching quantity: 17
Time searching date: 266
Time searching all: 377
Duration: 548

Total time: 6294%
o dunnaya@MacBook-Air-Dana helloworld %
```

N = 840 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 840000

Time using BIN
Writing time: 981
Reading time: 983
Time adding products: 187
Time searching name: 37
Time searching quantity: 2
Time searching date: 103
Time searching all: 143
Duration: 2302

Time using TXT
Writing time: 1950
Reading time: 1952
Time adding products: 146
Time searching name: 74
Time searching quantity: 4
Time searching date: 207
Time searching all: 286
Duration: 4350

Time using VECTOR
Time adding products: 189
Time searching name: 109
Time searching quantity: 16
Time searching date: 310
Time searching all: 436
Duration: 626

Total time: 7278%
o dunnaya@MacBook-Air-Dana helloworld %
```

N = 960 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 960000

Time using BIN
Writing time: 1120
Reading time: 1130
Time adding products: 204
Time searching name: 42
Time searching quantity: 2
Time searching date: 118
Time searching all: 163
Duration: 2627

Time using TXT
Writing time: 2237
Reading time: 2236
Time adding products: 161
Time searching name: 86
Time searching quantity: 6
Time searching date: 236
Time searching all: 330
Duration: 4983

Time using VECTOR
Time adding products: 196
Time searching name: 132
Time searching quantity: 18
Time searching date: 354
Time searching all: 505
Duration: 702

Total time: 8312%
○ dunnaya@MacBook-Air-Dana helloworld %
```

N = 1 080 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 1080000

Time using BIN
Writing time: 1262
Reading time: 1256
Time adding products: 255
Time searching name: 47
Time searching quantity: 2
Time searching date: 133
Time searching all: 183
Duration: 2967

Time using TXT
Writing time: 2512
Reading time: 2550
Time adding products: 217
Time searching name: 102
Time searching quantity: 6
Time searching date: 278
Time searching all: 386
Duration: 5685

Time using VECTOR
Time adding products: 143
Time searching name: 140
Time searching quantity: 11
Time searching date: 399
Time searching all: 551
Duration: 694

Total time: 9346%
○ dunnaya@MacBook-Air-Dana helloworld %
```

N = 1 200 000:

```
Modes:
1. Interactive
2. Demo
3. Benchmark
Select mode: 3

Enter N: 1200000

Time using BIN
Writing time: 1400
Reading time: 1392
Time adding products: 267
Time searching name: 52
Time searching quantity: 3
Time searching date: 147
Time searching all: 203
Duration: 3276

Time using TXT
Writing time: 2794
Reading time: 2790
Time adding products: 235
Time searching name: 105
Time searching quantity: 6
Time searching date: 295
Time searching all: 407
Duration: 6249

Time using VECTOR
Time adding products: 160
Time searching name: 165
Time searching quantity: 14
Time searching date: 443
Time searching all: 623
Duration: 783

Total time: 10308%
○ dunnaya@MacBook-Air-Dana helloworld %
```