#### **HW10**

#### SCREENSHOTS OF RUNNING PROGRAM ABOUT LINKED LIST

Output of terminal to prime numbers from 1 to 1.000.000 in linked list and time calculations:

```
nevra-VirtualBox: ~/Masaüstü
78442.Prime number in linked list= 999101,00
78443.Prime number in linked list= 999133,00
78444.Prime number in linked list= 999149,00
78445.Prime number in linked list= 999169,00
78446.Prime number in linked list= 999181,00
 78447.Prime number in linked list= 999199,00
78448.Prime number in linked list= 999217,00
78449.Prime number in linked list= 999221,00
78450.Prime number in linked list= 999233,00
78451.Prime number in linked list= 999239,00
78452.Prime number in linked list= 999269,00
78453.Prime number in linked list= 999287,00
78454.Prime number in linked list= 999307,00
78455.Prime number in linked list= 999329,00
 78456.Prime number in linked list= 999331,00
78457.Prime number in linked list= 999359,00
78458.Prime number in linked list= 999371,00
78459.Prime number in linked list= 999377,00
78460.Prime number in linked list= 999389,00
 78461.Prime number in linked list= 999431,00
78462.Prime number in linked list= 999433,00
78463.Prime number in linked list= 999437,00
78464.Prime number in linked list= 999451,00
78465.Prime number in linked list= 999491,00
 78466.Prime number in linked list= 999499,00
78467.Prime number in linked list= 999521,00
78468.Prime number in linked list= 999529,00
78469.Prime number in linked list= 999541,00
78470.Prime number in linked list= 999553,00
 78471.Prime number in linked list= 999563,00
78472.Prime number in linked list= 999599,00
78473.Prime number in linked list= 999611,00
78474.Prime number in linked list= 999613,00
78475.Prime number in linked list= 999623,00
 78476.Prime number in linked list= 999631,00
78477.Prime number in linked list= 999653,00
78478.Prime number in linked list= 999667,00
78478.Prime number in linked list= 999671,00
78480.Prime number in linked list= 999683,00
 78481.Prime number in linked list= 999721,00
78482.Prime number in linked list= 999727,00
78483.Prime number in linked list= 999749,00
78484.Prime number in linked list= 999763,00
78485.Prime number in linked list= 999769,00
 78486.Prime number in linked list= 999773,00
 78487.Prime number in linked list= 999809,00
78488.Prime number in linked list= 999853,00
78489.Prime number in linked list= 999863,00
78490.Prime number in linked list= 999883,00
78491.Prime number in linked list= 999907,00
 78492.Prime number in linked list= 999917,00
78493.Prime number in linked list= 999931,00
78494.Prime number in linked list= 999953,00
78495.Prime number in linked list= 999959,00
78496.Prime number in linked list= 999961,00
78497.Prime number in linked list= 999979,00
78497.Prime number in linked list= 999979,00
Time that is between 1 and 500.000 in linked list=367873 (ms)
Time that is between 1 and 750.000 in linked list=824726 (ms)
Time that is between 1 and 1.000.000 in linked list=1454557 (ms)
Time that is running time of record linked_list function=1454557 (ms)
```

# Prime numbers and time calculations results in output\_prime\_LiknedList.txt file: There are 78498 prime numbers.

There are 70450 prime in	mibers.
prime_LiknedList.txt (~/Masaüstü) - gedit	prime_LiknedList.txt (~/Masaüstü) - gedit
Ac ▼ F	Aç▼ ■
MG .	
1.Prime number =2,00	78445.Prime number =999169,00 78446.Prime number =999181,00
2.Prime number =3,00	78447.Prime number =999199,00
3.Prime number =5,00	78448.Prime number =999217.00
4.Prime number =7,00	78449.Prime number =999221,00
5.Prime number =11,00	78450.Prime number =999233,00
6.Prime number =13,00 7.Prime number =17,00	78451.Prime number =999239,00
8.Prime number =17,00	78452.Prime number =999269,00
9.Prime number = 23,00	78453.Prime number =999287,00
10.Prime number =29,00	78454.Prime number =999307,00
11.Prime number =31,00	78455.Prime number =999329,00
12.Prime number =37,00	78456.Prime number =999331,00
13.Prime number =41,00	78457.Prime number =999359,00
14.Prime number =43,00	78458.Prime number =999371,00
15.Prime number =47,00	78459.Prime number =999377,00
16.Prime number =53,00	78460.Prime number =999389,00 78461.Prime number =999431,00
17.Prime number =59,00	78462.Prime number =999433,00
18.Prime number =61,00 19.Prime number =67,00	78463.Prime number =999437.00
20.Prime number =71,00	78464.Prime number =999451,00
21.Prime number =73,00	78465.Prime number =999491,00
22.Prime number =79,00	78466.Prime number =999499,00
23.Prime number =83,00	78467.Prime number =999521,00
24.Prime number =89,00	78468.Prime number =999529,00
25.Prime number =97,00	78469.Prime number =999541,00
26.Prime number =101,00	78470.Prime number =999553,00
27.Prime number =103,00	78471.Prime number =999563,00
28.Prime number =107,00	78472.Prime number =999599,00 78473.Prime number =999611,00
29.Prime number =109,00 30.Prime number =113,00	78474.Prime number =999613,00
31.Prime number =127,00	78475.Prime number =999623,00
32.Prime number =131,00	78476.Prime number =999631,00
33.Prime number =137,00	78477.Prime number =999653,00
34.Prime number =139,00	78478.Prime number =999667,00
35.Prime number =149,00	78479.Prime number =999671,00
36.Prime number =151,00	78480.Prime number =999683,00
37.Prime number =157,00	78481.Prime number =999721,00 78482.Prime number =999727,00
38.Prime number =163,00 39.Prime number =167,00	78483.Prime number =999749,00
40.Prime number =173,00	78484.Prime number =999763,00
41.Prime number =179,00	78485.Prime number =999769,00
42.Prime number =181,00	78486.Prime number =999773,00
43.Prime number =191,00	78487.Prime number =999809,00
44.Prime number =193,00	78488.Prime number =999853,00
45.Prime number =197,00	78489.Prime number =999863,00
46.Prime number =199,00	78490.Prime number =999883,00
47.Prime number =211,00 48.Prime number =223,00	78491.Prime number =999907,00 78492.Prime number =999917,00
49.Prime number =227,00	78493.Prime number =999931,00
50.Prime number =229,00	78494.Prime number =999953,00
51.Prime number =233,00	78495.Prime number =999959,00
52.Prime number =239,00	78496.Prime number =999961,00
53. Prime number =241,00	78497.Prime number =999979,00
54.Prime number =251,00	78498.Prime number =999983,00
55.Prime number =257,00	Time that is between 1 and 500.000 in linked list= 367873 milliseconds(ms)
56.Prime number =263,00 57.Prime number =269,00	Time that is between 1 and 750.000 in linked list= 824726 milliseconds(ms)
58.Prime number =271,00	Time that is between 1 and 1.000.000 in linked list=1454557 milliseconds(ms) Time that is running time of record linked list function=1454557 milliseconds(ms)
	The chart is raining time of record_timed_tist function=1737337 Mittiseconds(MS)

Time that is between 1 and 500.000 in linked list =367873 ms Time that is between 1 and 7500.000 in linked list =824726 ms Time that is between 1 and 1.000.000 in linked list =1454557ms Time that is running time of linked list function =1454557ms

### **EXPLANATION**

Record\_linked\_list function reads data.txt file line by line by usinG read\_data function.It uses loop to find prime numbers.When node of linked list reaching numbers in pdf (500.000,750.000,1.000.000 and end of function)time calculations are made seperately.After that results is writed output\_prime\_LiknedList.txt file and terminal.

## SCREENSHOTS OF RUNNING PROGRM ABOUT DYNAMIC ARRAY

Output of terminal to prime numbers from 1 to 1.000.000 in dynamic array and time calculations:

```
nevra-VirtualBox: ~/Masaüstü
        78442.Prime number in dynamic array=999101,00
78443.Prime number in dynamic array=999133,00
78444.Prime number in dynamic array=999149,00
78445.Prime number in dynamic array=999181,00
78446.Prime number in dynamic array=999181,00
78448.Prime number in dynamic array=999197,00
78448.Prime number in dynamic array=999217,00
          78448.Prime number in dynamic array=999217,00
78449.Prime number in dynamic array=999221,00
78450.Prime number in dynamic array=999223,00
78451.Prime number in dynamic array=999239,00
78452.Prime number in dynamic array=999269,00
78453.Prime number in dynamic array=999287,00
78454.Prime number in dynamic array=999307,00
78455.Prime number in dynamic array=999317,00
78456.Prime number in dynamic array=999311,00
78458.Prime number in dynamic array=999371,00
78459.Prime number in dynamic array=999377,00
78460.Prime number in dynamic array=999389,00
78461.Prime number in dynamic array=999389,00
          78460.Prime number in dynamic array=999389,00
78461.Prime number in dynamic array=999431,00
78462.Prime number in dynamic array=999433,00
78463.Prime number in dynamic array=999437,00
78464.Prime number in dynamic array=999451,00
78465.Prime number in dynamic array=999499,00
78466.Prime number in dynamic array=999521,00
78468.Prime number in dynamic array=999521,00
78469.Prime number in dynamic array=999521,00
78470.Prime number in dynamic array=999553,00
78471.Prime number in dynamic array=999563,00
            78470.Prime number in dynamic array=999553,00
78471.Prime number in dynamic array=999563,00
78472.Prime number in dynamic array=999599,00
78473.Prime number in dynamic array=999611,00
78474.Prime number in dynamic array=999613,00
78475.Prime number in dynamic array=999623,00
78477.Prime number in dynamic array=999631,00
      78476.Prime number in dynamic array=999631,00
78477.Prime number in dynamic array=999653,00
78478.Prime number in dynamic array=999667,00
78478.Prime number in dynamic array=999671,00
78480.Prime number in dynamic array=99971,00
78481.Prime number in dynamic array=999721,00
78482.Prime number in dynamic array=999727,00
78483.Prime number in dynamic array=999749,00
78484.Prime number in dynamic array=999763,00
78485.Prime number in dynamic array=999763,00
78485.Prime number in dynamic array=999763,00
78486.Prime number in dynamic array=999809,00
78488.Prime number in dynamic array=999809,00
78489.Prime number in dynamic array=99983,00
78499.Prime number in dynamic array=99983,00
78491.Prime number in dynamic array=999917,00
78493.Prime number in dynamic array=999917,00
78493.Prime number in dynamic array=999953,00
78495.Prime number in dynamic array=999959,00
78496.Prime number in dynamic array=999959,00
78497.Prime number in dynamic array=999979,00
78498.Prime number in dynamic array=999979,00
78498.Prime number in dynamic array=999983,00
Time that is between 1 and 500.000 in dynamic array=462459 (ms)
Time that is between 1 and 500.000 in dynamic array=983348 (ms)
Time that is between 1 and 750.000 in dynamic array=983348 (ms)
Time that is between 1 and 750.000 in dynamic array=1811344 (ms)
nevra@nevra-VirtualBox:~/Masaüstü$
                                                        a@nevra-VirtualBox:~/Masaüstü$
```

# Prime numbers and time calculations results in output\_prime\_dynamic\_array.txt: There are 78498 prime number.

```
prime_dynamic_array.txt (~/Masaüstü) - gedit
                                       יט, וסויוטפו =שטייוטפו וייט איז וייט איז די
                                       78447.Prime number=999199,00
                                       78448.Prime number=999217,00
                                       78449.Prime number=999221,00
                                       78450.Prime number=999233.00
1.Prime number=2,00
                                       78451.Prime number=999239,00
2.Prime number=3.00
                                       78452.Prime number=999269,00
3.Prime number=5,00
                                       78453.Prime number=999287,00
78454.Prime number=999307,00
4.Prime number=7.00
5.Prime number=11,00
                                       78455.Prime number=999329,00
6.Prime number=13,00
                                       78456.Prime number=999331,00
7.Prime number=17,00
                                        78457.Prime number=999359,00
8.Prime number=19,00
9.Prime number=23,00
                                       78458.Prime number=999371,00
10.Prime number=29,00
                                        78459.Prime number=999377,00
11.Prime number=31,00
                                       78460.Prime number=999389,00
12.Prime number=37.00
                                       78461.Prime number=999431,00
13.Prime number=41,00
                                       78462.Prime number=999433,00
14.Prime number=43,00
                                       78463.Prime number=999437,00
15.Prime number=47,00
                                       78464.Prime number=999451,00
16.Prime number=53.00
                                       78465.Prime number=999491,00
17.Prime number=59,00
                                       78466.Prime number=999499,00
18.Prime number=61,00
                                       78467.Prime number=999521.00
19.Prime number=67,00
                                       78468.Prime number=999529,00
20.Prime number=71,00
                                       78469.Prime number=999541.00
21.Prime number=73,00
                                       78470.Prime number=999553,00
22.Prime number=79.00
                                       78471.Prime number=999563.00
23.Prime number=83,00
                                       78472.Prime number=999599,00
24.Prime number=89,00
                                       78473.Prime number=999611,00
25.Prime number=97,00
                                       78474.Prime number=999613,00
26.Prime number=101,00
27.Prime number=103,00
                                       78475.Prime number=999623,00
28.Prime number=107,00
                                        78476.Prime number=999631,00
                                       78477.Prime number=999653,00
29.Prime number=109,00
30.Prime number=113.00
                                       78478.Prime number=999667.00
31.Prime number=127,00
                                       78479.Prime number=999671,00
32.Prime number=131,00
                                       78480.Prime number=999683,00
33.Prime number=137.00
                                       78481.Prime number=999721,00
34.Prime number=139,00
                                       78482.Prime number=999727,00
35.Prime number=149.00
                                       78483.Prime number=999749,00
36.Prime number=151.00
                                       78484.Prime number=999763.00
37.Prime number=157,00
                                       78485.Prime number=999769,00
38.Prime number=163,00
                                       78486.Prime number=999773.00
39.Prime number=167,00
                                       78487.Prime number=999809,00
40.Prime number=173.00
                                       78488.Prime number=999853,00
41.Prime number=179,00
                                       78489.Prime number=999863,00
42.Prime number=181,00
                                       78490.Prime number=999883,00
43.Prime number=191,00
                                       78491.Prime number=999907,00
44.Prime number=193,00
45.Prime number=197,00
                                       78492.Prime number=999917,00
46.Prime number=199,00
                                        78493.Prime number=999931,00
47.Prime number=211,00
                                       78494.Prime number=999953,00
48.Prime number=223.00
                                       78495.Prime number=999959,00
49.Prime number=227,00
50.Prime number=229,00
                                       78496.Prime number=999961,00
                                       78497.Prime number=999979,00
51.Prime number=233.00
                                       78498.Prime number=999983,00
52.Prime number=239,00
                                       Time that is between 1 and 500.000 in dynamic array= 462459 milliseconds(ms)
53.Prime number=241.00
                                       Time that is between 1 and 750.000 in dynamic array= 983348 milliseconds(ms)
54.Prime number=251,00
                                       Time that is between 1 and 1.000.000 in dynamic array= 1811344 milliseconds(ms)
55.Prime number=257,00
                                       Time that is running time of record_array function= 1811344 milliseconds(ms)
56.Prime number=263,00
```

Time that is between 1 and 500.000 in dynamic array=462459ms Time that is between 1 and 7500.000 in dynamic array =983348ms Time that is between 1 and 1.000.000 in dynamic array =1811344ms Time that is running time of dynamic array=1811344ms

### **EXPLANATION**

Record\_array function reads data.txt file line by line by using read\_data function.It creates dynamic array.It uses loop to find prime numbers.When dynamic array element reaching numbers in pdf (500.000,750.000,1.000.000 and end of function)time calculations are made seperately.After that results is writed output\_prime\_dynamic\_array.txt file and terminal.