**Input Output File**

A prompt will open when the program runs. Users select an input file from the computer.

A screenshot of a computer

Description automatically generated

**Step 1**: After selecting the file, the user can select in which way he wants to create dynamic array. There are 3 strategies such as Incremental =1, Doubling=2 and Fibonacci=3. User can enter the value and according to his input dynamic array will be created.

**Step 2:** If user wants to sort the array, then user can enter the value = yes

If the array is already sorted, then enter the value = no

**Step 3:** If you want to insert new value into dynamic array then enter a value that will be inserted into correct position

**Testcase 1:** (Incremental)

Input file contains 50 words

**Output**:

A screenshot of a computer program

Description automatically generated

Continuing the screenshot

A screen shot of a computer

Description automatically generated

**Testcase 1:** (Doubling)

Input file contains 50 words

**Output**:

A screenshot of a computer program

Description automatically generated

Continuing screenshot

A computer screen with white text

Description automatically generated

**Testcase 1:** (Fibonacci)

Input file contains 50 words

**Output**:

A screenshot of a computer program

Description automatically generated

Continuing screenshot

A screen shot of a computer program

Description automatically generated

Continuing screenshot

A computer screen shot of a black screen

Description automatically generated

**Testcase 2:** (Incremental)

Input file contains 100 words

**Output**

A computer screen shot of a program

Description automatically generated

**Testcase 2:** (Doubling)

Input file contains 100 words

**Output**

A screenshot of a computer program

Description automatically generated

**Testcase 2: (Fibonacci)**

Input file contains 100 words

**Output**

A computer screen shot of a black screen

Description automatically generated

**Testcase 4 (EOW):** (Incremental)

Input file contains 370104 words

**Output**

A screenshot of a computer program

Description automatically generated

**Testcase 4 (EOW):** (Doubling)

Input file contains 370104 words

**Output**

A screenshot of a computer program

Description automatically generated

**Testcase 4 (EOW):** (Fibonacci)

Input file contains 370104 words

**Output**

A screenshot of a computer program

Description automatically generated

**Input & Output file of dynamic array created by python list:**

**Testcase 1:**

Input file contains 50 words

**Output**

**A computer screen shot of a program

Description automatically generated**

**Testcase 2:**

Input file contains 100 words

**Output**

**A screenshot of a computer program

Description automatically generated**

**Testcase 3:**

Input file contains 600 words

**Output**

**A screenshot of a computer program

Description automatically generated**

**Testcase 4 (EOW):**

Input file contains 370104 words

**Output**

A screenshot of a computer program

Description automatically generated

**Comparison time & Space:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Testcase | Incremental | Doubling | Fibonacci | Python List |
| Testcase1  =50 words | 1.Dynamic Array Creation time =0.006180000 sec  Space=472 bytes  2.Sorting time =0.000031200 sec  Space =456 bytes  3.Insertion (backbit)  Search time= 0.000039100 sec  Space = 472 bytes | 1.Dynamic Array Creation time =0.004372400sec  Space=568bytes  2.Sorting time =0.000024800sec  Space =456 bytes  3.Insertion (backbit)  Search time= 0.000037600sec  Space = 568bytes | 1.Dynamic Array Creation time = 0.004486100 sec  Space=496 bytes  2.Sorting time =0.000022400sec  Space =456 bytes  3.Insertion (backbit)  Search time= 0.000028500 sec  Space = 496 bytes | 1.Dynamic Array Creation time =0.000669900 sec  Space=2959 bytes  2.Sorting time = 0.000272200 sec  Space = 2959 bytes  3.Insertion (backbit)  Search time= 0.000013100 sec  Space = 3007 bytes |
| Testcase2  =100 words | 1.Dynamic Array Creation time = 0.006628900 sec  Space=872 bytes  2.Sorting time =0.000034500 sec  Space =856 bytes  3.Insertion (aband)  Search time= 0.000037700 sec  Space = 872 bytes | 1.Dynamic Array Creation time = 0.003393600sec  Space=1080bytes  2.Sorting time =0.000042900 sec  Space =856 bytes  3.Insertion (aband)  Search time = 0.000031300 sec  Space = 1080bytes | 1.Dynamic Array Creation time = 0.006219900 sec  Space=1208bytes  2.Sorting time =0.000023900sec  Space =856 bytes  3.Insertion (aband)  Search time = 0.000046800sec  Space = 1208 bytes | 1.Dynamic Array Creation time = 0.008363500 sec  Space=5725  2.Sorting time =0.000369800 sec  Space =5725 bytes  3.Insertion (aband)  Search time = 0.000029900 sec  Space = 5771 bytes |
| Testcase3  =602 words | 1.Dynamic Array Creation time = 0.000162800sec  Space=4872bytes  2.Sorting time =0.000162800sec  Space =4872bytes  3.Insertion (inordinacy)  Search time= 0.000034300 sec  Space = 4952 bytes | 1.Dynamic Array Creation time = 0.005659400 sec  Space=8248 bytes  2.Sorting time =0.000130600sec  Space =4872bytes  3.Insertion (inordinacy)  Search time= 0.000047200sec  Space = 8248 bytes | 1.Dynamic Array Creation time = 0.007797100sec  Space=4936  2.Sorting time =0.000129500sec  Space =4872bytes  3.Insertion (inordinacy)  Search time= 0.000047000 sec  Space = 4936 bytes | 1.Dynamic Array Creation time = 0.000746500  Space= 35674 bytes  2.Sorting time = 0.000485400 sec  Space = 35674 bytes  3.Insertion (inordinacy)  Search time= 0.000021400 sec  Space = 35725 bytes |
| Testcase4  =370104  words | 1.Dynamic Array Creation time = 553.776635900  Space= 2960952 bytes  2.Sorting time = 0.049903000 sec  Space = 2960888 bytes  3.Insertion (padawan)  Search time= 0.000046100 sec  Space = 2960952 bytes | 1.Dynamic Array Creation time = 0.147903400 sec  Space= 4194360 bytes  2.Sorting time = 0.046384500 sec  Space = 2960888 bytes  3.Insertion (padawan)  Search time= 0.000060900 sec  Space = 4194360 bytes | 1.Dynamic Array Creation time = 0.178160100 sec  Space= 4113888 bytes  2.Sorting time = 0.045387500 sec  Space = 2960888 bytes  3.Insertion (padawan)  Search time= 0.000041200 sec  Space = 4113888 bytes | 1.Dynamic Array Creation time = 0.146842900 sec  Space= 21961623 bytes  2.Sorting time = 0.149378400 sec  Space = 21961623 bytes  3.Insertion (padawan)  Search time= 0.000053400 sec  Space = 21961671 bytes |