## 2.1

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Algo1** | **Algo2** | **Algo3** |
| 41 | 45 | 41 | 52 |
| 67 | 71 | 67 | 81 |
| 34 | 40 | 36 | 44 |
| 0 | 2 | 2 | 3 |
| 69 | 75 | 71 | 83 |
| 24 | 34 | 30 | 32 |
| 78 | 88 | 84 | 92 |
| 58 | 64 | 60 | 71 |
| 62 | 68 | 64 | 75 |
| 64 | 73 | 69 | 78 |

## 2.3

|  |  |  |  |
| --- | --- | --- | --- |
| **Array Size** | **Average** | **Best** | **Worst** |
| 5000 | 6198068 | 5002 | 12377081 |
| 10000 | 24939622 | 10002 | 49504801 |
| 15000 | 56267620 | 15002 | 111380971 |
| 20000 | 99382664 | 20002 | 198008940 |
| 25000 | 153944452 | 25002 | 309389846 |
| 30000 | 222759153 | 30002 | 445517785 |
| 35000 | 301732718 | 35002 | 606390876 |
| 40000 | 393774486 | 40002 | 792019973 |
| 45000 | 502321838 | 45002 | 1002396048 |
| 50000 | 617859277 | 50002 | 1237524088 |

## 3.1

|  |  |  |  |
| --- | --- | --- | --- |
| **Array Size** | **Average** | **Best** | **Worst** |
| 5000 | 0.016357 | 0.000018 | 0.032732 |
| 10000 | 0.067782 | 0.000036 | 0.132218 |
| 15000 | 0.151044 | 0.000054 | 0.294971 |
| 20000 | 0.273156 | 0.000073 | 0.532383 |
| 25000 | 0.41569 | 0.000088 | 0.821421 |
| 30000 | 0.593303 | 0.000106 | 1.208985 |
| 35000 | 0.796845 | 0.000123 | 1.61514 |
| 40000 | 1.05983 | 0.000166 | 2.125752 |
| 45000 | 1.359509 | 0.00016 | 2.686208 |
| 50000 | 1.643054 | 0.000188 | 3.337296 |

## 4.1

|  |  |  |  |
| --- | --- | --- | --- |
| Array Size | Worst | Average | Best |
| 500 | 0.000015 | 0.000009 | 0.000008 |
| 1000 | 0.000042 | 0.000039 | 0.000019 |
| 1500 | 0.000048 | 0.000016 | 0.000014 |
| 2000 | 0.00002 | 0.000022 | 0.000019 |
| 2500 | 0.000042 | 0.000016 | 0.000012 |
| 3000 | 0.000019 | 0.000019 | 0.000015 |
| 3500 | 0.000036 | 0.000017 | 0.000014 |
| 4000 | 0.000016 | 0.000009 | 0.000016 |
| 4500 | 0.000046 | 0.000017 | 0.000014 |
| 5000 | 0.000025 | 0.000019 | 0.000012 |

## 4.2

|  |  |  |  |
| --- | --- | --- | --- |
| Array size | Sorted | Random | Reverse |
| 25000 | 0.0034 | 0.0055 | 0.0033 |
| 50000 | 0.007 | 0.0138 | 0.009 |
| 75000 | 0.0109 | 0.018 | 0.0106 |
| 100000 | 0.0147 | 0.0286 | 0.0154 |
| 125000 | 0.0198 | 0.0371 | 0.01977 |

## 4.3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Array size | Brute Force minimum | Brute Force maximum | DnC minimum | DnC maximum |
| 20000 | 0.000214 | 0.000208 | 0.000701 | 0.000281 |
| 40000 | 0.000142 | 0.00014 | 0.000531 | 0.000534 |
| 60000 | 0.000213 | 0.000215 | 0.000783 | 0.000784 |
| 80000 | 0.000391 | 0.000327 | 0.00135 | 0.001452 |
| 100000 | 0.000445 | 0.000405 | 0.001337 | 0.001306 |
| 120000 | 0.000414 | 0.000407 | 0.001553 | 0.00155 |
| 140000 | 0.000521 | 0.000485 | 0.001747 | 0.002138 |
| 160000 | 0.000613 | 0.000575 | 0.002087 | 0.002252 |
| 180000 | 0.000619 | 0.000625 | 0.002993 | 0.002688 |
| 200000 | 0.000701 | 0.000674 | 0.002373 | 0.002397 |

## 5.1

|  |  |  |  |
| --- | --- | --- | --- |
| 5000 | 0.001 | 0.001 | 0.001 |
| 10000 | 0.002 | 0.001 | 0.002 |
| 15000 | 0.003 | 0.002 | 0.001 |
| 20000 | 0.004 | 0.005 | 0.005 |
| 25000 | 0.005 | 0.005 | 0.005 |
| 30000 | 0.007 | 0.008 | 0.006 |
| 35000 | 0.007 | 0.007 | 0.007 |
| 40000 | 0.008 | 0.008 | 0.012 |
| 45000 | 0.01 | 0.013 | 0.011 |
| 50000 | 0.015 | 0.01 | 0.014 |

## 5.2

|  |  |  |  |
| --- | --- | --- | --- |
| **Array Size** | **Sorted** | **Random** | **Reverse** |
| 5000 | 0.001 | 0.001 | 0.001 |
| 10000 | 0.002 | 0.002 | 0.002 |
| 15000 | 0.004 | 0.002 | 0.002 |
| 20000 | 0.005 | 0.002 | 0.003 |
| 25000 | 0.005 | 0.005 | 0.005 |
| 30000 | 0.005 | 0.008 | 0.006 |
| 35000 | 0.009 | 0.007 | 0.009 |
| 40000 | 0.012 | 0.012 | 0.008 |
| 45000 | 0.009 | 0.01 | 0.011 |
| 50000 | 0.01 | 0.011 | 0.01 |