SORTING ELEMENTS IN DESCENDING ORDER (TYPE 1)

AIM: SORTING IN DESCENDING ORDER

1. startIndex = P = 0
2. endIndex = Q = length -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 1 | 0 | 9 | 7 |
| VAR | P |  |  | Q |
| P < Q  SWAP P AND Q | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 7 | 0 | 9 | 1 |
| VAR | P |  |  | Q |
| P>Q  SHIFT Q BY 1 | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 7 | 0 | 9 | 1 |
| VAR | P |  | Q |  |
| P<Q  SWAP P AND Q | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 0 | 7 | 1 |
| VAR | P |  | Q |  |
| P>Q  SHIFT Q BY 1 | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 0 | 7 | 1 |
| VAR | P | Q |  |  |
| P>Q  CANNOT SHIFT Q SINCE P!=Q | | | | |

FIRST ELEMENT SUCCESFULLY SORTED. NOW FOR THE SECOND ELEMENT:

1. startIndex = P = 1
2. endIndex = Q = length -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 0 | 7 | 1 |
| VAR |  | P |  | Q |
| P<Q  SWAP P AND Q | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 1 | 7 | 0 |
| VAR |  | P |  | Q |
| P>Q  SHIFT Q BY 1 | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 1 | 7 | 0 |
| VAR |  | P | Q |  |
| P<Q  SWAP P AND Q | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 7 | 1 | 0 |
| VAR |  | P | Q |  |
| P>Q  CANNOT SHIFT Q SINCE P!=Q | | | | |

SECOND ELEMENT SUCCESFULLY SORTED. NOW FOR THE THIRD ELEMENT:

1. startIndex = P = 2
2. endIndex = Q = length -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 7 | 1 | 0 |
| VAR |  |  | P | Q |
| P>Q  CANNOT SHIFT Q SINCE P!=Q | | | | |

THIRD ELEMENT SUCCESFULLY SORTED. NOW FOR THE FOURTH ELEMENT:

1. startIndex = P = 3
2. endIndex = Q = length -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 7 | 1 | 0 |
| VAR |  |  |  | P,Q |
| LOOP WILL NOT RUN SINCE P!=Q | | | | |

ELEMENTS SUCCESFULLY SORTED IN DESCENDING ORDER

LOGIC:

TWO LOOPS TAKE PLACE

1. FOR LOOP. IT RUNS THE startIndex FROM FIRST TO LAST ELEMENT
2. WHILE LOOP. RUNS WHILE P!=Q.
   1. DECREMENTS Q WHEN P>Q
   2. SWAPS P AND Q WHEN P<Q

WHILE LOOP IS NESTED IN THE FOR LOOP.