SORTING ELEMENTS IN DESCENDING ORDER (TYPE 2)

AIM: SORTING IN DESCENDING ORDER

1. Index1 = P = 0
2. Index2 = Q = Index1 + 1

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 0 | 1 | 7 |
| VAR | P |  |  | Q |
| P >Q  CANNOT SHIFT Q SINCE ARRAY LIMIT REACHED | | | | |

FIRST ELEMENT SORTED SUCCESSFULLY. NOW FOR THE SECOND ELEMENT:

1. Index1 = P = 1
2. Index2 = Q = Index1 + 1

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

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 7 | 0 | 1 |
| VAR |  | P |  | Q |
| P >Q  CANNOT SHIFT Q SINCE ARRAY LIMIT REACHED | | | | |

SECOND ELEMENT SORTED SUCCESSFULLY. NOW FOR THE THIRD ELEMENT:

1. Index1 = P = 2
2. Index2 = Q = Index1 + 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INDEX | 0 | 1 | 2 | 3 |
| VALUE | 9 | 7 | 0 | 1 |
| 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 ARRAY LIMIT REACHED | | | | |

THIRD ELEMENT SORTED SUCCESFULLY.

LOOP WILL END. FOURTH ELEMENT IS AUTOMATICALLY SORTED.

LOGIC:

TWO NESTED LOOPS ARE USED TO SORT THE NUMBERS:

1. FOR LOOP 1: INCREMENT P FROM 1 TO LENGTH -2
2. FOR LOOP 2: INCREMENTS Q FROM P+1 TO LENGTH -1
   1. IF P<Q SWAPS P AND Q

THEN LOOP CONTINUES AND INCREMENTS Q