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| --- | --- | --- | --- | --- |
| timbradas.PNG | | | **Tipo de Atividade**:  Prova ( ) Trabalho ( X )  Avaliação: G1 ( ) G2 ( X )  Substituição de Grau:  G1 ( ) G2 ( ) | |
| **Curso de Sistemas de Informação** | | | | |
| **Disciplina:** Estrutura de Dados II | | **Período:** 4º | | **Data:** 28/10/2016 |
| **Professor:** Bruno Souto Borges | | | | **Valor:** 0,5 ponto |
| **Aluno(a): Rondinele Barbosa Santos** | | | |
| ***Visto prof.*** | ***Visto coord.*** | | | **Nota**: **\_\_\_\_\_\_\_\_\_\_** |

1. Ordene os vetores de números abaixo utilizando o BubbleSort.

1. **– 5 – 2 – 3 – 1 – 4 – 8 – 7 – 6**

9 – 5 – 2 – 3 – 1 – 4 – 8 – 7 – 6

5 – 9 – 2 – 3 – 1 – 4 – 8 – 7 – 6

5 – 2 – 9 – 3 – 1 – 4 – 8 – 7 – 6

5 – 2 – 3 – 9 – 1 – 4 – 8 – 7 – 6

5 – 2 – 3 – 1 – 9 – 4 – 8 – 7 – 6

5 – 2 – 3 – 1 – 4 – 9 – 8 – 7 – 6

5 – 2 – 3 – 1 – 4 – 8 – 9 – 7 – 6

5 – 2 – 3 – 1 – 4 – 8 – 7 – 9 – 6

5 – 2 – 3 – 1 – 4 – 8 – 7 – 6 – 9

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2 – 3 – 1 – 4 – 5 – 7 – 6 – 8 – 9

2 – 3 – 1 – 4 – 5 – 7 – 6 – 8 – 9

2 – 1 – 3 – 4 – 5 – 7 – 6 – 8 – 9

2 – 1 – 3 – 4 – 5 – 7 – 6 – 8 – 9

2 – 1 – 3 – 4 – 5 – 7 – 6 – 8 – 9

2 – 1 – 3 – 4 – 5 – 7 – 6 – 8 – 9

2 – 1 – 3 – 4 – 5 – 6 – 7 – 8 – 9

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1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9

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1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9

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1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9

1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9

2. Faça um algoritmo que ordene 20 números armazenados em um vetor aplicando a ordenação com o algoritmo Bubblesort, ao final da execução mostre na tela o vetor ordenado e desordenado e também os números pares e os número impares deste vetor.

3. Apresente no vetor de dados abaixo a representação de ordenação do algoritmo BucketSort utilizando 3 recipientes.

a.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **120** | **12** | **1** | **10** | **11** | **22** | **2** |  | **49** | **12** |

120

49

12 – 1 – 10 11 – 22 – 2 12

0 – 40 41 – 81 82 – 122

120

49

1 – 2 – 10 11 – 12 – 12 22

0 – 40 41 – 81 82 – 122

Resposta:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **10** | **11** | **12** | **12** | **22** |  | **49** | **120** |

b.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** |

7 – 6 – 5 – 4

10 – 9 – 8

3 - 2

0 – 3 4 – 7 8 – 11

8 – 9 – 10

4 – 5 – 6 – 7

2 – 3

0 – 3 4 – 7 8 – 11

Resposta:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |

c.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **7** | **14** | **5** | **3** | **2** | **11** | **1** | **13** | **4** |

14 – 11 - 13

7 – 5

3 – 2 – 1 – 4

0 – 4 5 – 9 10 - 14

11 – 13 – 14

5 – 7

1 – 2 – 3 – 4

0 – 4 5 – 9 10 - 14

Resposta:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **7** | **11** | **13** | **14** |

4. Elabore um programa que leia somente 10 números e faça a ordenação dos elementos utilizando SelectionSort. Ao final da ordenação imprima na tela os elementos ordenados e a multiplicação dos números impares após a ordenação do vetor.

5. Ordene os vetores de números abaixo utilizando o algoritmo QuickSort.

a.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **33** | **31** | **41** | **44** | **5** | **51** | **66** | **6** | **3** |

33 – 31 – 41 – 44 – 5 – 51 – 66 – 6 – 3

31 – 5 – 6 – 3 – 33 – 41 – 44 – 51 – 66

5 – 6 – 3 – 31 – 33 – 41 – 44 – 51 – 66

3 – 5 – 6 – 31 – 33 – 41 – 44 – 51 – 66

3 – 5 – 6 – 31 – 33 – 41 – 44 – 51 – 66

b.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **3** | **12** | **75** | **17** | **53** | **1** | **23** | **77** | **31** |

3 – 12 – 75 – 17 – 53 – 1 – 23 – 77 – 31

1 – 3 – 12 – 75 – 17 – 53 – 23 – 77 – 31

1 – 3 – 12 – 75 – 17 – 53 – 23 – 77 – 31

1 – 3 – 12 – 17 – 53 – 23 – 31 – 75 – 77

1 – 3 – 12 – 17 – 53 – 23 – 31 – 75 – 77

1 – 3 – 12 – 17 – 23 – 31 – 53 – 75 – 77

1 – 3 – 12 – 17 – 23 – 31 – 53 – 75 – 77

1 – 3 – 12 – 17 – 23 – 31 – 53 – 75 – 77

6. Ordene os vetores de números abaixo utilizando o algoritmo Mergesort demostrando todos os passos.

a.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **70** | **79** | **78** | **71** | **77** | **72** | **75** |

70 – 79 – 78 – 71 – 77 – 72 – 75

|70 – 79 – 78 | |71 – 77 – 72| |75|

|70 – 79| |78| |71 – 77| |72| |75|

|70| |79| |78| |71| |77| |72| |75|

|70 – 79 – 78| |71 – 72 – 77| |75|

|70 – 79 – 78| |71 – 72 – 77 – 75|

|70 – 71 – 72 – 75 – 77 – 78 – 79|

b.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | **121** | **21** | **22** | **12** | **11** | **2** |

1 – 121 – 21 – 22 – 12 – 11 – 2

|1 – 121 – 21| |22 – 12 – 11| |2|

|1 – 121| |21| |22 – 12| |11| |2|

|1| |121| |21| |22| |12| |11| |2|

|1 – 121| |21| |12 – 22| |2 – 11|

|1 – 21 – 121| |2 – 11 – 12 – 22|

|1 – 2 – 11 – 12 – 21 – 22 – 121|

7. Elabore um algoritmo que consiga ordenar um vetor de números definidos pelos usuários. Para tanto siga a estrutura case abaixo.

1 – Quantidade de elementos a serem inseridos

2 – Inserir elementos

3 – Imprimir elementos ordenados

4 – Imprimir elementos desordenados

5 – Imprimir a soma dos números

6 – Imprimir a soma dos números pares e ímpares

7 – Imprimir a multiplicação dos números pares

8 – Imprimir a multiplicação da soma dos núm pares com os núm ímpares

9 – Sair