rmehitang@Ralphs-PC:/mnt/c/Users/ralph/Desktop/cosc/cosc-320/lab1$ ./a.out

Welcome to sorts Lab1

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

1

How many numbers total do you want to be generated in array?

25

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

1

Original Array

84 87 78 16 94 36 87 93 50 22 63 28 91 60 64 27 41 27 73 37 12 69 68 30 83 it took 175 swaps

Now this is the sorted array:

12 16 22 27 27 28 30 36 37 41 50 60 63 64 68 69 73 78 83 84 87 87 91 93 94 it took 0 swaps

finished at Wed Feb 6 15:49:42 2019

elapsed time: 0.0107751s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

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press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

1

How many numbers total do you want to be generated in array?

50

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

2

Original Array

31 63 24 68 36 30 3 23 59 70 68 94 57 12 43 30 74 22 20 85 38 99 25 16 71 14 27 92 81 57 74 63 71 97 82 6 26 85 28 37 6 47 30 14 58 25 96 83 46 15 it took 590 swaps

Now this is the sorted array:

3 6 6 12 14 14 15 16 20 22 23 24 25 25 26 27 28 30 30 30 31 36 37 38 43 46 47 57 57 58 59 63 63 68 68 70 71 71 74 74 81 82 83 85 85 92 94 96 97 99 it took 0 swaps

finished at Wed Feb 6 15:49:53 2019

elapsed time: 0.0010246s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

1

How many numbers total do you want to be generated in array?

100

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

3

Original Array

68 35 65 44 51 88 9 77 79 89 85 4 52 55 100 33 61 77 69 40 13 27 87 95 40 96 71 35 79 68 2 98 3 18 93 53 57 2 81 87 42 66 90 45 20 41 30 32 18 98 72 82 76 10 28 68 57 98 54 87 66 7 84 20 25 29 72 33 30 4 20 71 69 9 16 41 50 97 24 19 46 47 52 22 56 80 89 65 29 42 51 94 1 35 65 25 15 88 57 44 it took 4950 swaps

Now this is the sorted array:

2 2 3 4 4 7 9 9 10 13 18 18 19 16 20 20 20 22 24 25 25 1 27 28 29 29 30 30 32 33 33 35 35 35 40 40 41 41 42 42 44 44 15 45 46 47 50 51 51 52 52 53 54 55 56 57 57 57 61 65 65 65 66 66 68 68 68 69 69 71 71 72 72 76 77 77 79 79 80 81 82 84 85 87 87 87 88 88 89 89 90 93 94 95 96 97 98 98 98 100 it took 4950 swaps

finished at Wed Feb 6 15:49:59 2019

elapsed time: 0.0071659s

Array has not been sorted

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

2

How many numbers total do you want to be generated in array?

25

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

1

Original Array

it took 179 swaps

8 12 19 22 28 29 29 29 30 30 33 36 37 38 38 44 52 59 60 66 75 76 92 94 96 it took 0 swaps

Now this is the sorted array:

8 12 19 22 28 29 29 29 30 30 33 36 37 38 38 44 52 59 60 66 75 76 92 94 96 it took 0 swaps

finished at Wed Feb 6 15:50:06 2019

elapsed time: 0.0006349s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

2

How many numbers total do you want to be generated in array?

50

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

3

Original Array

it took 601 swaps

5 5 5 6 7 8 11 12 12 14 18 18 19 23 23 25 26 29 29 39 40 41 41 43 44 44 44 45 47 49 55 56 64 65 69 70 70 71 73 77 83 84 87 89 91 91 97 98 100 100 it took 1225 swaps

Now this is the sorted array:

5 5 5 6 7 8 11 12 12 14 18 18 19 23 23 25 26 29 29 39 40 41 41 43 44 44 44 45 47 49 55 56 64 65 69 70 70 71 73 77 83 84 87 89 91 91 97 98 100 100 it took 1225 swaps

finished at Wed Feb 6 15:50:19 2019

elapsed time: 0.0009865s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

3

How many numbers total do you want to be generated in array?

50

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

1

Original Array

6 2 2 11 19 6 1 17 5 7 3 6 9 17 3 19 5 18 3 5 1 17 13 20 20 11 9 12 14 12 2 11 14 15 1 4 20 2 20 17 20 14 14 9 11 16 7 7 5 1 it took 522 swaps

Now this is the sorted array:

1 1 1 1 2 2 2 2 3 3 3 4 5 5 5 5 6 6 6 7 7 7 9 9 9 11 11 11 11 12 12 13 14 14 14 14 15 16 17 17 17 17 18 19 19 20 20 20 20 20 it took 0 swaps

finished at Wed Feb 6 15:51:11 2019

elapsed time: 0.001153s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

3

How many numbers total do you want to be generated in array?

65

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

3

Original Array

11 5 17 3 17 8 6 17 20 19 8 13 9 13 20 10 17 11 3 8 7 2 14 13 2 16 20 20 2 5 20 12 1 8 6 9 8 11 5 19 1 5 3 10 17 2 11 5 13 13 13 11 6 6 3 20 1 3 19 14 19 11 5 11 10 it took 2080 swaps

Now this is the sorted array:

1 1 1 2 2 2 2 3 3 3 3 5 5 5 5 5 5 3 6 6 6 6 7 8 8 8 8 8 9 9 10 10 10 11 11 11 11 11 11 11 12 13 13 13 13 13 13 14 14 16 17 17 17 17 17 19 19 19 19 20 20 20 20 20 20 it took 2080 swaps

finished at Wed Feb 6 15:52:25 2019

elapsed time: 0.000217s

Array has not been sorted

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Main Menu

press 1 to test randomly generated numbers:

press 2 to test arrays that are already sorted:

press 3 to test arrays that contain duplicate elements:

press 4 to test arrays that are sorted backwards:

press 5 to end the program:

4

How many numbers total do you want to be generated in array?

50

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

1

Original Array

it took 549 swaps

99 95 94 91 90 85 85 82 80 80 77 74 73 70 69 68 62 61 60 59 56 56 55 54 51 49 49 45 43 43 37 37 34 34 33 29 27 22 22 20 14 9 9 7 6 5 5 4 3 3 it took 1214 swaps

Now this is the sorted array:

3 3 4 5 5 6 7 9 9 14 20 22 22 27 29 33 34 34 37 37 43 43 45 49 49 51 54 55 56 56 59 60 61 62 68 69 70 73 74 77 80 80 82 85 85 90 91 94 95 99 it took 0 swaps

finished at Wed Feb 6 15:52:35 2019

elapsed time: 0.000804s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

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press 4 to test arrays that are sorted backwards:

press 5 to end the program:

4

How many numbers total do you want to be generated in array?

75

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

2

Original Array

it took 1347 swaps

100 98 98 98 97 96 95 93 93 93 91 90 89 89 89 87 86 82 78 76 72 69 68 68 65 64 61 61 60 58 57 55 54 53 52 51 50 50 50 49 48 47 47 44 44 40 40 39 39 37 36 36 35 34 30 30 30 30 29 29 28 28 26 22 16 15 5 5 4 4 3 3 1 1 1 it took 2742 swaps

Now this is the sorted array:

1 1 1 3 3 4 4 5 5 15 16 22 26 28 28 29 29 30 30 30 30 34 35 36 36 37 39 39 40 40 44 44 47 47 48 49 50 50 50 51 52 53 54 55 57 58 60 61 61 64 65 68 68 69 72 76 78 82 86 87 89 89 89 90 91 93 93 93 95 96 97 98 98 98 100 it took 0 swaps

finished at Wed Feb 6 15:52:47 2019

elapsed time: 0.0009793s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

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press 4 to test arrays that are sorted backwards:

press 5 to end the program:

4

How many numbers total do you want to be generated in array?

100

Which sort would you like to use? (1 for bubble, 2 for insertion,3 for selection)

3

Original Array

it took 2418 swaps

97 95 94 91 91 91 91 91 90 90 89 88 87 87 85 84 84 83 82 81 80 79 79 78 75 74 74 72 71 71 70 70 69 68 67 62 62 61 61 60 60 59 59 58 58 58 57 56 56 53 52 50 48 47 47 46 45 44 43 42 42 41 39 38 38 35 34 33 32 30 30 30 28 27 27 27 26 25 24 21 19 18 18 18 17 15 15 15 13 13 13 13 11 10 8 7 6 6 1 1 it took 4950 swaps

Now this is the sorted array:

1 1 6 6 7 8 10 11 13 13 13 13 15 15 15 17 18 18 18 19 21 24 25 26 27 27 27 28 30 30 30 32 33 34 35 38 38 39 41 42 42 43 44 45 46 47 47 48 50 52 53 56 56 57 58 58 58 59 59 60 60 61 61 62 62 67 68 69 70 70 71 71 72 74 74 75 78 79 79 80 81 82 83 84 84 85 87 87 88 89 90 90 91 91 91 91 91 94 95 97 it took 4950 swaps

finished at Wed Feb 6 15:52:52 2019

elapsed time: 0.0009947s

array has been sorted

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Main Menu

press 1 to test randomly generated numbers:

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press 4 to test arrays that are sorted backwards:

press 5 to end the program:

5