

Page 95: 38bd, 48, 49, 50, 62

38 independent tasks of length 8, 11, 17, 14, 16, 9, 2, 1, 18, 5, 3, 7, 6, 2, 1

b) Sorted list: 18, 17, 16, 14, 11, 9, 8, 7, 6, 5, 3, 2, 2, 1, 1

Machine 1: 18, 14, 11, 7, 6, 2, 2

Machine 2: 17, 16, 9, 8, 5, 3, 1, 1

d) 19, 19, 20, 20, 1, 1, 2, 2, 3, 3, 5, 5, 11, 11, 17, 18, 18, 17, 2, 16, 16, 2

Sorted list: 20, 20, 19, 19, 18, 18, 17, 17, 16, 16, 11, 11, 5, 5, 3, 3, 2, 2, 2, 2, 1, 1

Machine 1: 20, 19, 18, 17, 16, 11, 5, 3, 2, 2, 1

Machine 2: 20, 19, 18, 17, 16, 11, 5, 3, 2, 2, 1

48. Two minutes 15 seconds = 135 seconds.

List: 80, 90, 130, 50, 60, 20, 90, 30, 30, 40.

First fit:

Bin 1: 80 and 50; Bin 2: 90 and 20; Bin 3: 130; Bin 4: 60, 30, 30; Bin 5: 90, 40.

Sorted list: 130, 90, 90, 80, 60, 50, 40, 30, 30, 20.

First fit decreasing:

Bin 1: 130; Bin 2: 90 and 40; Bin 3: 90 and 30; Bin 4: 80 and 50; Bin 5: 60, 30, 20.

List: 60, 50, 40, 40, 60, 90, 90, 50, 20, 30, 30, 50.

First fit:

Bin 1: 60, 40, 50; Bin 2: 40, 60, 20; Bin 3: 90, 30; Bin 4: 90, 30; Bin 5: 50, 50.

Sorted list: 90, 90, 60, 60, 50, 50, 50, 40, 40, 30, 30, 20.

First fit decreasing:

Bin 1: 90, 40; Bin 2: 90, 40; Bin 3: 60, 60; Bin 4: 50, 50, 30; Bin 5: 50, 30, 20.

49. List: 12, 15, 16, 12, 9, 11, 15, 17, 12, 14, 17, 18, 19, 21, 31, 7, 21, 9, 23, 24, 15, 16, 12, 9, 8, 27, 22, 18.

Next fit:

Bin 1: 12, 15; Bin 2: 16, 12; Bin 3: 9, 11, 15; Bin 4: 17, 12; Bin 5: 14, 17; Bin 6: 18; Bin 7: 19; Bin 8: 21; Bin 9: 31; Bin 10: 7, 21; Bin 11: 9, 23; Bin 12: 24; Bin 13: 15, 16; Bin 14: 12, 9, 8; Bin 15: 27; Bin 16: 22; Bin 17: 18.

Worst fit:

Bin 1: 12, 15, 9; Bin 2: 16, 12; Bin 3: 11, 15; Bin 4: 17, 12; Bin 5: 14, 17; Bin 6: 18, 7; Bin 7: 19, 9; Bin 8: 21, 15; Bin 9: 31; Bin 10: 21, 9; Bin 11: 23, 8; Bin 12: 24; Bin 13: 16, 12; Bin 14: 27; Bin 15: 22; Bin 16: 18.

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Sorted list:

31, 27, 24, 23, 22, 21, 21, 19, 18, 18, 17, 17, 16, 16, 15, 15, 15, 14, 12, 12, 12, 12, 11, 9, 9, 9, 8, 7.

Next fit decreasing:

Bin 1: 31; Bin 2: 27; Bin 3: 24; Bin 4: 23; Bin 5: 22; Bin 6: 21; Bin 7: 21; Bin 8: 19; Bin 9: 18, 18; Bin 10: 17, 17; Bin 11: 16, 16; Bin 12: 15, 15; Bin 13: 15, 14; Bin 14: 12, 12, 12; Bin 15: 12, 11, 9; Bin 16: 9, 9, 8, 7.

Worst fit decreasing:

Bin 1: 31; Bin 2: 27, 9; Bin 3: 24, 12; Bin 4: 23, 12; Bin 5: 22, 14; Bin 6: 21, 15; Bin 7: 21, 15; Bin 8: 19, 17; Bin 9: 18, 18; Bin 10: 17, 16; Bin 11: 16, 15; Bin 12: 12, 12, 11; Bin 13: 9, 9, 8, 7.

50. Size = 480

List: 100, 120, 60, 90, 110, 45, 30, 70, 60, 50, 40, 25, 65, 25, 55, 35, 45, 60, 75, 30, 120, 100, 60, 90, 85.

Next fit:

Bin 1: 100, 120, 60, 90, 110; Bin 2: 45, 30, 70, 60, 50, 40, 25, 65, 55, 35; Bin 3: 45, 60, 75, 30, 120, 100; Bin 4: 60, 90, 85.

First fit:

Bin 1: 100, 120, 60, 90, 110; Bin 2: 45, 30, 70, 60, 50, 40, 25, 65, 55, 35; Bin 3: 45, 60, 75, 30, 120, 100; Bin 4: 60, 90, 85.

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Sorted list: 120, 120, 110, 100, 100, 90, 90, 85, 75, 70, 65, 60, 60, 60, 60, 55, 50, 45, 45, 40, 35, 30, 30, 25, 25.

Next fit decreasing

Bin 1: 120, 120, 110, 100; Bin 2: 100, 90, 90, 85, 75; Bin 3: 70, 65, 60, 60, 60, 60, 55; Bin 4: 50, 45, 45, 40, 35, 30, 30, 25, 25.

First fit decreasing:

Bin 1: 120, 120, 110, 100, 30; Bin 2: 100, 90, 90, 85, 75, 40; Bin 3: 70, 65, 60, 60, 60, 60, 55, 50; Bin 4: 45, 45, 35, 25, 25.

62. List: 8, 5, 3, 4, 3, 7, 8, 8, 6, 5, 3, 2, 1, 2, 1, 2, 1, 3, 5, 2, 4, 2, 6, 5, 3, 4, 2, 6, 7, 7, 8, 6, 5, 4, 6, 1, 4, 7, 5, 1, 2, 4.

Sorted list: 8, 8, 8, 8, 7, 7, 7, 7, 6, 6, 6, 6, 6, 5, 5, 5, 5, 5, 5, 4, 4, 4, 4, 4, 4, 3, 3, 3, 3, 3, 2, 2, 2, 2, 2, 2, 1, 1, 1, 1, 1.

a) Bin size 9

First fit decreasing:

Bins 1 through 4: 8,1; Bins 5 through 8: 7,2; Bins 9 through 13: 6,3; Bins 14 through 19: 5,4; Bin 20: 2,2,2,1.

b) Bin size 10

First fit decreasing: Bins 1 through 4: 8,2; Bins 5 through 8: 7,3; Bins 9 through 13: 6,4; Bins 14 through 16: 5,5; Bin 17: 4,3,2; Bin 18: 2,2,1,1,1,1,1.

c) Bin size 11

First fit decreasing: Bins 1 through 4: 8,3; Bins 5 through 8: 7,4; Bins 9 through 13: 6,5; Bin 14: 5,4,2; Bin 15: 4,3,2,2; Bin 16: 2,2,2,2,1,1,1; Bin 17: 1,1.

d) Bin size 12

First fit decreasing: Bins 1 through 4: 8,4; Bins 5 through 8: 7,5; Bins 9 and 10: 6,5,1; Bins 11 and 12: 6,4,2; Bin 13: 6,3,3; Bin 14: 3,3,2,2,2; Bin 15: 2,2,1,1,1,1.