Assignment 4

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Task 1

1.1) D
1.2) A
1.3) C
1.4) D
1.5) C

Task 2

2.1)

Task 3

3.1) 350 is greater than 148 therefor a segment fault occurs.

3.2) 220 is greater than 122 therefor a segment fault occurs.

3.3) 762 is less than 812 therefor the physical address is: 770 + 762 = 1532.

3.4) 300 is less than 408 therefor the physical address is: 1582 + 300 = 1882.

3.5) 237 is less than 510 therefor the physical address is: 1990 + 237 = 2227.

Task 4

4.1) proportional allocation algorithm states that for each process there must be "A" amount of frames allocated.

The formula for this is A = (si / S)*m

si = size of process pi

S = sum of all the sizes of all the processes

M = number of frames in the system

P1: Number of frames required is: A= (30 / (30 + 90 + 60 + 120))*256 = 25.6, rounded up to 26 frames

P2: Number of frames required is: A= (90 / (30 + 90 + 60 + 120))*256 = 76.8, rounded up to 77 frames

P3: Number of frames required is: A= (60 / (30 + 90 + 60 + 120))*256 = 51.2, rounded down to 51 frames

P4: Number of frames required is: A= (120 / (30 + 90 + 60 + 120))*256 = 102.4, rounded down to 102 frames

Task 5

5.1) 16 entries x 4KB per page = 64KB

5.2) 64KB x 4 segments per task = 256KB

5.3) The physical address occupies a total of 24 bits

Converting the hexadecimal value 012ABC to binary gives us: 0000 0001 0010 1010 1011 1100

The maximum physical address space is = 2^{24} = 16MB