Chapter 3 Assignment

Q1. Swapping

Consider a swapping system in which memory consists of the following hole sizes in memory order:

10 KB, 4 KB, 20 KB, 18 KB, 7 KB, 9 KB, 12 KB, and 15 KB.

Which hole is taken for successive segment requests of
  a) 12 KB
  b) 10 KB
  c) 9 KB
for first fit? Now repeat the question for best fit, worst fit, and next fit.

Q2. Virtual Memory

A computer provides each process with 65,536 bytes of address space divided into pages of 4096 bytes. A particular program has a text size of 32,768 bytes, a data size of 16,386 bytes, and a stack size of 15,870 bytes. Will this program fit in the address space? If the page size were 512 bytes, would it fit? Explain your answers to get full credit. Note that a page may not contain parts of two different segments.

Q3. Segmentation

Consider the following segment table:

Segment	Base	Length
0	219	600
1	2300	14
2	90	10
3	1327	580
4	1952	96

What are the physical addresses for the following logical address (segment#, offset)?

  (a) (0, 430)
  (b) (1, 10)
  (c) (2, 500)
  (d) (3, 400)
  (e) (4, 112)

Q4. Page Replacement

A computer has four page frames. The time of loading, time of last access, and the R bit for each page are as shown below (the times are in clock ticks):

Page	Loaded	Last reference	R
0	126	280	1
1	230	265	0
2	140	270	0
3	110	285	1

(a) Which page will FIFO replace?
(b) Which page will LRU replace?
(c) Which page will second chance replace?

Briefly explain your answers