Class Work 8 - Memory Management and Working with Files

TASK 1: Memory Management

1. Differentiate between Contiguous Memory Allocation and Block Linkage

Consider a storage device with 100 blocks of storage. Each block has a size of 2kB. A file directory contains the following files that are to be saved in by the file manager. The shaded area of the storage space is already occupied.
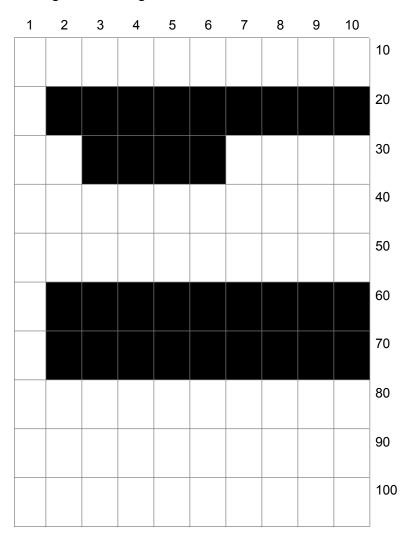
File name	File size
Exam.doc	30kB
Keith.txt	15kB
Grades.xls	20kB
solution.txt	10kB

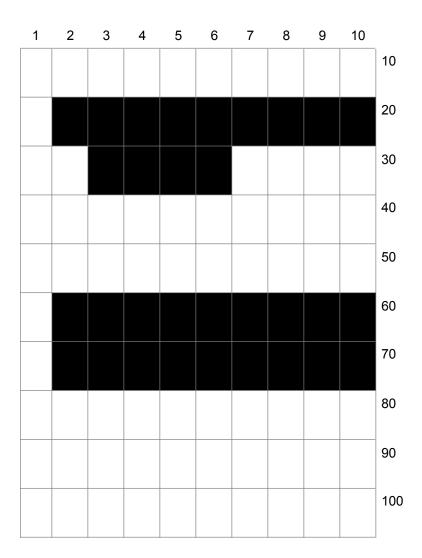**Show how the above files would be stored (if possible) under each of the following strategies:**

- **Contiguous Storage**
- **Block Linkage - you can assume that the pointer requires 0.5KB.**

Contiguous Storage

	1	2	3	4	5	6	7	8	9	10	
											10
		■	■	■	■	■	■	■	■	■	20
			■	■	■	■					30
											40
											50
		■	■	■	■	■	■	■	■	■	60
		■	■	■	■	■	■	■	■	■	70
											80
											90
											100

Block Link Storage

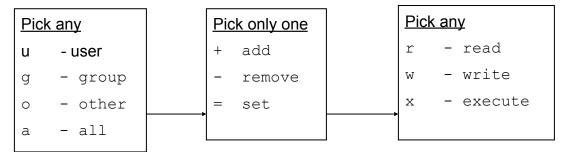|	1	2	3	4	5	6	7	8	9	10	
											10
		■	■	■	■	■	■	■	■	■	20
			■	■	■	■					30
											40
											50
		■	■	■	■	■	■	■	■	■	60
		■	■	■	■	■	■	■	■	■	70
											80
											90
											100

TASK 2: Files & Permissions in Unix

1. **Use the text editor to create a number of files called file1.txt, file2.txt, file3.txt and file4.txt in your home directory (folder). Write some text in the files.**

2. **What is the information produced by the ls –l command, when you type it in the command line? Describe in details the meaning of the listed information.**

Hint. You should see a list with details on your files and/or folders similar with the one bellow.

```
-rwxr-xr-x   1 jsmith   staff        43 Mar 23 18:14 prog1
drwxr--r-x   2 jsmith   staff       512 Mar 23 18:07 subdir1
```

3. **Type `man  chmod` to find out the purpose of the chmod command. What this command does?**

The **chmod** command is built up from menus of symbolic values as follows

Pick any	Pick only one	Pick any
u - user	+ add	r - read
g - group	- remove	w - write
o - other	= set	x - execute
a - all		

For example, `chmod g+w myfile.txt`   gives the group write permission on myfile.txt.

4. **Use the chmod command to change the permissions on <u>file1.txt</u> so that everyone can read, write and execute it. What command did you type in?**

5. **How do you use the text format of the chmod command in order to remove your write access from file2.txt? Try it in the command line.**

6. **How do you use the text format of the chmod command in order to remove read permission for file3.txt from everyone except yourself?**

7. **Permissions on a file can also be set using the numeric format of the chmod command. (E.g. `chmod 777 filename`).**

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To change the permissions on file named `phone.numbers`, from rw-rwxr-- to rwxr-xrw-, how would you use the chmod command?