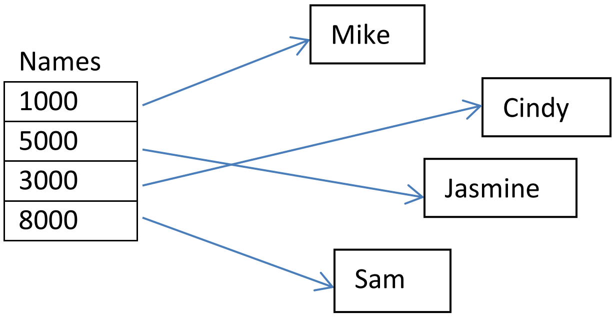
Assume a file has the following names:

Mike
Jasmine
Cindy
Sam

Store this data by allocating dynamic memory for an array of 4 pointers and then for each name allocate space to store it Remember to allocate strlen(name)+1 in order to have space for the string terminating character, '\0'. For example below in order to store Mike malloc (5*sizeof(char)) would be used.



The sorted array should be:

Names

3000
5000
1000
8000

Calculate the space complexity of this implementation. (more details needed)

Consider another more efficient implementation (that does not need to allocate n pointers). Allocate a long string and copy all names in it.

0	1	2	3	4	**5**	6	7	8	9	10	11	12	**13**	14	15	16	17	18	**19**	20	21	22
M	i	k	e	\0	**J**	a	s	m	i	n	e	\0	**C**	i	n	d	y	\0	**S**	a	m	\0

The array of indexes (where each word starts) is:

0
5
13
19

Sort the names by indirect sort. Now the array of indexes will have be:

13
5
0
19

Which gives the names in alphabetic order:

Cindy
Jasmine
Mike
Sam