

EEN322  
Easy Test  
14<sup>th</sup> October 2014  
Puppies Strictly Forbidden

Name:

Student number:

Sign here if you did not give or receive aid in any form during this test,  
and did not consult any written or printed material apart from this test:

.....

Don't write in these boxes.

Question	Out of	Grade
1	33	
2	33	
3	33	
4	1	

1.

A.

Explain exactly what these four functions do

- i. `fork`
- ii. `execlp`
- iii. `exit`
- iv. `wait`

B.

A particular program needs a lot of data to be entered. It is unlikely that it could all be typed correctly at the first attempt, and the program has only just worked out what the format should be, so the user obviously wasn't able to put the data in a file before running the program.

So the program will start up `pico` for you, so you can type the data and make use of all the familiar editing keys to get it right. The program will not continue until `pico` exits, then it can read the file.

Write a C function that does exactly that. It takes a file name as its parameter, and has the same effect as typing the command `pico name`

And that's all you have to do, run `pico` and don't let the program continue until `pico` is finished.

2.

Write the following C string processing functions:

- A. Find the length of a string, e.g. the length of “one two” is 7.
- B. Reverse a string, e.g. “one two” gets changed into “owt eno”.
- C. Produce a new copy of a string, but with all the vowels removed, e.g. “one two” produces “n tw”.
- D. Compare two strings. If they are exactly identical, print “same”. If they are not, print “different”.  
But use the standard library function for comparing strings, don't do it all yourself.

### 3.

Here, we are interested in making it convenient to work with an array of strings. First you'll write a function that does all the memory allocation required to create an array of strings, and at the end you'll write a function get rid of it (that is, return all of the memory to the system for recycling).

- A. Write a function that takes two parameters, one is an array of ints, and the other is a single int  $N$  giving the length of the array. For example:

```
int sizes[] = { 100, 50, 256, 500 };  
... create_strings(sizes, 4) ...
```

The function should create an array with  $N+1$  entries. The first  $N$  of them should be strings of the indicated sizes (size = maximum number of characters), and the last entry should be `NULL`. The memory for the strings should be properly allocated and ready for use. The strings must also be initialised as valid empty strings so that an accidental attempt to use them before filling them would not cause an error.

- B. Write a function that takes as its one and only parameter an array of strings as described for part A, and prints each of them on a separate line.
- C. Write a function that takes as its one and only parameter an array of strings as described for part A, and *de*-allocates everything. All memory used should be released back to the heap.

4.

Write an essay in NO MORE THAN 5 words about your favourite unix function. Do not use the letter 'E' (or 'e').





