

CMPE 230: Systems Programming
Midterm 1, Fall 2001

Problem 1 (10 pts)

Suppose you are given a datafile which consists of (name, telephone number) pairs on each line. An example of datafile is shown below:

```
ali    212-212-3333
veli   216-888-3322
hulya  212-231-8218
```

Write a PERL program called `rehber` which reads the datafile and then prompts the user for a name. If a name is entered, then the telephone number of the person (if it exists) will be printed. The input will be terminated by `<ctrl-d>`.

When the program `rehber` is run as follows, you will get the following output:

```
% rehber datafile
>
>ali
  ali's number is : 212-212-3333
> hulya
  hulya's number is : 212-231-8218
> ahmet
  ahmet does not exist in the directory
> <ctrl-d>
```

Problem 2 (16 pts)

Write a CGI program in C which will print

Hello World 1

when the first visitor visits it. Then

Hello World 2

when the second visitor visits and so on. You can assume existence of a file called `counter` which keeps an integer which is the count of all visitors. Important note: Your program should work for concurrent users.

Problem 3 (15 pts)

(a) Fill in the following table with appropriate string or yes/no answer.

String	Pattern	Matched ? (Yes/No)
"veli,d,ali."	/[[^] a-z0-9A-Z]+ali./	
"veli,d,ali."	/.\W+d,?ali./	
	/(\w+)\s*=\s*\1/	yes
"ali veli ba x ca x caca"	/((ali veli x) (zz .a*)) \1.*\3/	

(b) What is the output of the following program ?

```
$a = "abc23:az32k:ali,veli,hello:ut:hello,:" ;
$a =~ s/([a-zA-Z0-9]+):([a-zA-Z0-9]+):/$2 $1/ ;
$a =~ tr/a-z0-9,/A-Z/d ;
print $a, "\n" ;
```

Problem 4 (15 pts)

Write a perl program which will count the number of occurrences of words in a file and print them in alphabetical order. As an example, suppose the data file contains:

```
Ali, veli ayse    hello.
Istanbul new york, Virginia, North Carolina
Maryland, Maslak Maslak, ali
```

then the output of your program should be:

```
ali 2
ayse 1
carolina 1
hello 1
istanbul 1
maryland 1
maslak 2
new 1
north 1
veli 1
virginia 1
york 1
```

Problem 5 (12 pts)

Give equivalent statements to each of the following using `split` or `splice` functions. Note: the statements you give should not be exactly same.

<code>\$a = shift(@abz) ;</code>	-----
<code>\$z = pop(@abz) ;</code>	-----
<code>unshift(@abz,\$a) ;</code>	-----
<code>push(@abz,\$z) ;</code>	-----
<code>push(@abz,\$z) ;</code>	-----
<code>push(@abz,@abz) ;</code>	-----

Problem 6 (10 pts)

When you want to execute a program (say `prog`) in the current directory, you have to issue:

```
> ./prog
```

at the Unix prompt. In order to change this default behavior and to be able to directly execute the program without `./` i.e. as follows:

```
> prog
```

what can you do ? Give the commands to do this and explain in which file you would put these commands.

Problem 7 (12 pts)

Give unix commands that accomplish the following tasks:

- (a) List the files/directories in the current directory together with their permissions, sizes and dates.

- (b) Change the permission of all files/directories in the current directory to be readable, writeable and executable to only the user.
- (c) Suppose you have a directory called MYDIR in the current directory. Change the permission of the MYDIR in such a way that anyone will be able to cd into MYDIR but no one will be able to list the names of files/directories in this directory. Also, you will be able to read the contents of a readable file in MYDIR (provided that you know the name of the file).
- (d) Give the (pipes of) unix commands which will show how many processes user ali is currently running.
- (e) Give the name of unix command which makes typescript of terminal session.
- (f) Give the name of unix command which starts the X windows.

Problem 8 (10 pts)

Write `Exporter` definitions for a package named PERSONS so that the package can be use'd with the following statements:

```

use PERSONS ;                # will get $ali $veli , muhlis
use PERSONS qw(: english) ;  # will get englishspeak, $mary, @bush
use PERSONS qw(: french) ;   # will get $pier , $lois, $napolyon
use PERSONS qw(kathy petro) ; # will get kathy and petro
use PERSONS qw(/man/) ;      # will get $goldman, @sachsman and %weizman

```