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ANSWERS TO EVEN-NUMBERED EXERCISES

2. How would you instruct an Apache server to listen on port 81 instead of port 80?

In `httpd.conf`, change the directive

```
Listen 80
```

to

```
Listen 81
```

4. Apache must be started as **root**. Why? Why does this action not present a security risk?

By default, Apache listens on port 80, which is a privileged port. Only **root** can use privileged ports, so you must start Apache as **root**. Starting Apache as **root** does not pose a security risk because Apache releases **root** privileges as soon as it has started using the port.

6. Why is it more efficient to run scripts using `mod_php` or `mod_perl` than through CGI?

Running a CGI script requires a system call to `fork()` and `exec()` to create a new process. Once the process has finished (which, in the case of CGI scripts, is usually very shortly after it has started), it terminates. A script run from a module does not have this overhead because it runs inside the Apache server process.

8. Some Web sites generate content by retrieving data from a database and inserting it into a template using PHP or CGI each time the site is accessed. Why is this practice often a poor idea?

In many cases, the same data is generated each time a given page is accessed, unnecessarily using CPU and disk resources for each access. Using resources unnecessarily can result in pages being unavailable when the system load is high.

2 ANSWERS TO EVEN-NUMBERED EXERCISES

10. Part of a Web site is a private intranet and is accessed as `http://example.com/intranet`. Describe how you would prevent people outside the company from accessing this site. Assume the company uses the `192.168.0.0/16` subnet internally.

a. Insert the following lines in `httpd.conf`:

```
<Directory /var/www/html/corp>
    Order deny,allow
    Deny from all
    Allow from 192.168.
</Directory>
```

b. Create the following `.htaccess` file in the `intranet` directory:

```
Order deny,allow
Deny from all
Allow from 192.168.
```