

1. Configure apache to use Worker MPM

```
fady@fady-virtual-machine:~$ apache2ctl -V | grep -i mpm
Server MPM:  event
fady@fady-virtual-machine:~$ sudo a2enmod mpm_worker
[sudo] password for fady:
Considering conflict mpm_event for mpm_worker:
ERROR: Module mpm_event is enabled - cannot proceed due to conflicts. It needs to be disabled first!
Considering conflict mpm_prefork for mpm_worker:
fady@fady-virtual-machine:~$ sudo a2dismod mpm_event
Module mpm_event disabled.
To activate the new configuration, you need to run:
    systemctl restart apache2
fady@fady-virtual-machine:~$ sudo a2enmod mpm_worker
Considering conflict mpm_event for mpm_worker:
Considering conflict mpm_prefork for mpm_worker:
Enabling module mpm_worker.
To activate the new configuration, you need to run:
    systemctl restart apache2
fady@fady-virtual-machine:~$ sudo systemctl restart apache2
fady@fady-virtual-machine:~$ apache2ctl -V | grep -i mpm
Server MPM:  worker
fady@fady-virtual-machine:~$
```

2. Check the status of rewrite_mod and enable it if it is enabled.

```
fady@fady-virtual-machine:~$ sudo nano /etc/apache2/apache2.conf
fady@fady-virtual-machine:~$ apache2ctl -M | grep rewrite
fady@fady-virtual-machine:~$ sudo a2enmod rewrite
Enabling module rewrite.
To activate the new configuration, you need to run:
    systemctl restart apache2
fady@fady-virtual-machine:~$ apache2ctl -M | grep rewrite
rewrite module (shared)
fady@fady-virtual-machine:~$
```

3. Write RewriteCond and RewriteRules for:

- Deny access to `http://localhost/page?queryString` if `queryString` contains the string forbidden.
- Remove the Query String
- Rewrite URLs like `http://localhost/page1?var=val` to `http://localhost/page2?var=val` but do not rewrite if `val` isn't present.
- Take a URL of the form `http://localhost/path?var=val` and transform it into `http://localhost/path/var/val`.
- Map `http://localhost/example/one/two` to `http://localhost/something.cgi?arg=one&other=two`
- (Bonus)** Display a `goodevening.html` page if the time is after 6:00 PM and `goodmorning.html` page if the time is before that

```
GNU nano 7.2 .htaccess *
RewriteEngine On
# Block if query string contains "forbidden"
RewriteCond %{QUERY_STRING} forbidden [NC]
RewriteRule ^ - [F]

#Remove the query string
RewriteCond %{QUERY_STRING} .
RewriteRule ^ %{REQUEST_URI}? [R=301,L]

#Rewrite URLs like http://localhost/page1?var=val to http://localhost/page2?var=val but do not rewrite if val isn't present
RewriteCond %{QUERY_STRING} ([^&])var=([^\&]+) [NC]
RewriteRule ^page1$ /page2?var=%2 [R=301,L]

#Take a URL of the form http://localhost/path?var=val and transform it into http://localhost/path/var/val
RewriteCond %{QUERY_STRING} ([^&])var=([^\&]+) [NC]
RewriteRule ^path$ /path/var/%2? [R=301,L]

# Map http://localhost/example/one/two to http://localhost/something.cgi?arg=one&other=two
RewriteRule ^example/([^\/]+)/([^\/]*)$ /something.cgi?arg=$1&other=$2 [L,QSA]

# If time is between 18:00 and 23:59 -> evening
RewriteCond %{TIME_HOUR} >=18
RewriteRule ^$ /goodevening.html [L]

# If time is between 00:00 and 17:59 -> morning
RewriteCond %{TIME_HOUR} <18
RewriteRule ^$ /goodmorning.html [L]
```

4. Create a virtual host for os.iti.gov.eg to redirect to a local directory in your server

```
<VirtualHost *:80>
    ServerName os.iti.gov.eg
    ServerAlias www.os.iti.gov.eg
    DocumentRoot /var/www/os.iti.gov.eg

    <Directory /var/www/os.iti.gov.eg>
        Options Indexes FollowSymLinks
        AllowOverride All
        Require all granted
    </Directory>

    ErrorLog ${APACHE_LOG_DIR}/os.iti.gov.eg-error.log
    CustomLog ${APACHE_LOG_DIR}/os.iti.gov.eg-access.log combined
</VirtualHost>
```

```
fady@fady-virtual-machine:/var/www/html$ sudo nano .htaccess
fady@fady-virtual-machine:/var/www/html$ sudo mkdir -p /var/www/os.iti.gov.eg
fady@fady-virtual-machine:/var/www/html$ sudo chown -R $USER:$USER /var/www/os.iti.gov.eg
fady@fady-virtual-machine:/var/www/html$ sudo nano /etc/apache2/sites-available/os.iti.gov.eg.conf
fady@fady-virtual-machine:/var/www/html$ sudo nano /etc/hosts
fady@fady-virtual-machine:/var/www/html$
```