Deploy LipidLynxX

Requirement

LipidLynxX is based on FastAPI, thus tool chains using `nginx`, `supervisor`, `gunicorn`, and `uvicorn` is recommended.

- **System installation**
  - `sudo apt install nginx supervisor`
- **Python installation**
  - Install `anaconda` / `miniconda` and create a virtual enviroment e.g. `envlynx`
    - `conda create -n envlynx python=3.7`
    - `conda activate envlynx`
    - `pip install -r requirement.txt` # do this under LipidLynxX folder
  - Install `gunicorn`, and `uvicorn`
    - `pip install gunicorn uvicorn gevent`

Restart linux server before going to following setps.

Setup nginx

- Check if you have `nginx` installed and go to its config folder
  - `cd /etc/nginx/conf.d`
- Create a new config file named `lynx.conf`
  - `sudo nano lynx.conf`
- Edit following content accordingly especially content inside `{}` and save the file.

```
server {
    listen 80;
    server_name {example.com};
    access_log  /var/log/nginx/example.log;

    location / {
        proxy_pass http://127.0.0.1:8000;
        proxy_set_header Host $host;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
    }
}
```

    - `http://127.0.0.1:8000` is default by `gunicorn`

- Restart `nginx`
    - `sudo service nginx restart`

Setup supervisor

- Check if you have `supervisor` installed and go to its config folder
    - `cd /etc/supervisor/conf.d`
- Create a new config file named `lynx.conf`
    - `sudo nano lynx.conf`
- Edit following content accordingly especially content inside `{}` and save the file.

    - ```
      [program:gunicorn]
      directory={path_to_lipid_lynx_folder}
      environment=PATH=/home/anaconda3/envs/{envlynx}/bin  # or your env path
      command=/home/{user_name}/anaconda3/envs/{envlynx}/bin/gunicorn lynx.app:app
      -w 4 -k uvicorn.workers.UvicornWorker
      autorestart=true
      redirect_stderr=true
      stdout_logfile={path_to_lipid_lynx_folder}/stdout.log
      stderr_logfile={path_to_lipid_lynx_folder}/error.log

      [supervisord]
      logfile={path_to_lipid_lynx_folder}/supervisord.log
      logfile_maxbytes=50MB
      ```
        - if you use miniconda, then replace anaconda3 by miniconda/miniconda3
        - `-w 4` means set up 4 workers, you can adjust number of workers based on your server configuration.
- Refresh configs for `supervisor`
    - `sudo supervisorctl reread`
- Restart `supervisor`
    - `sudo service supervisor restart`

Test LipidLynxX

Now you can visit `127.0.0.1` on the PC/server running LipidLynxX and other PCs in the same local network can access LipidLynxX web GUI using the IP of LipidLynxX computer e.g. `192.168.100.101`

Update LipidLynxX

After updating LipidLynxX, you have to restart the web service.

You can reboot the server or run following two commands to restart `supervisor` and `nginx` service.
      ```

- `sudo service supervisor restart`
- `sudo service nginx restart`

LipidLynxX should then run with the new version.