Master of Technology in Artificial Intelligence Systems

USER GUIDE

AI-Powered Scheduling System

Group 10		
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Contents

1   Preparation

1.1   Start Backend

```
(base) ./ % cd SystemCode/backend
(base) ./SystemCode/backend % conda create -n env python=3.10
(base) ./SystemCode/backend % conda activate env
(env) ./SystemCode/backend % pip install -r requirement.txt
(env) ./SystemCode/backend % uvicorn main:app --reload
```

1.2   Start Frontend

```
./ % cd SystemCode/frontend
./SystemCode/frontend % npm start
```

2   Troubleshooting

2.1   issue 1: npm start problem

```
frontend % npm start
> ai_scheduling_system@0.1.0 start
> react-scripts start
sh:  react-scripts:  command not found
frontend % nvm install 18 --lts
v18.20.8 is already installed.
Now using node v18.20.8 (npm v10.8.2)
frontend % nvm use 18
Now using node v18.20.8 (npm v10.8.2)
frontend % rm -rf node_modules package-lock.json
frontend % npm install react@18 react-dom@18 react-scripts@5.0.1
npm warn EBADENGINE Unsupported engine
npm warn EBADENGINE package:  'react-router-dom@7.9.4',
npm warn EBADENGINE required:    node:  '>=20.0.0' ,
npm warn EBADENGINE current:    node:  'v18.20.8', npm:  '10.8.2'
npm warn EBADENGINE
npm warn EBADENGINE Unsupported engine
npm warn EBADENGINE package:  'react-router@7.9.4',
npm warn EBADENGINE required:    node:  '>=20.0.0' ,
npm warn EBADENGINE current:    node:  'v18.20.8', npm:  '10.8.2'
```

```
npm warn EBADENGINE
npm warn deprecated inflight@1.0.6:  This module is not supported, and
leaks memory.  Do not use it.  Check out lru-cache if you want a good
and tested way to coalesce async requests by a key value, which is
much more comprehensive and powerful.
npm warn deprecated stable@0.1.8:  Modern JS already guarantees
Array#sort() is a stable sort, so this library is deprecated.  See the
compatibility table on MDN:
https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global
npm warn deprecated @babel/plugin-proposal-private-methods@7.18.6:
This proposal has been merged to the ECMAScript standard and thus this
plugin is no longer maintained.  Please use
@babel/plugin-transform-private-methods instead.
npm warn deprecated @babel/plugin-proposal-numeric-separator@7.18.6:
This proposal has been merged to the ECMAScript standard and thus this
plugin is no longer maintained.  Please use
@babel/plugin-transform-numeric-separator instead.
npm warn deprecated
@babel/plugin-proposal-nullish-coalescing-operator@7.18.6:  This
proposal has been merged to the ECMAScript standard and thus this
plugin is no longer maintained.  Please use
@babel/plugin-transform-nullish-coalescing-operator instead.
npm warn deprecated @babel/plugin-proposal-class-properties@7.18.6:
This proposal has been merged to the ECMAScript standard and thus this
plugin is no longer maintained.  Please use
@babel/plugin-transform-class-properties instead.
npm warn deprecated rollup-plugin-terser@7.0.2:  This package has been
deprecated and is no longer maintained.  Please use
@rollup/plugin-terser
npm warn deprecated @humanwhocodes/config-array@0.13.0:  Use
@eslint/config-array instead
npm warn deprecated abab@2.0.6:  Use your platform's native atob() and
btoa() methods instead
npm warn deprecated rimraf@3.0.2:  Rimraf versions prior to v4 are no
longer supported
npm warn deprecated @babel/plugin-proposal-optional-chaining@7.21.0:
This proposal has been merged to the ECMAScript standard and thus this
plugin is no longer maintained.  Please use
@babel/plugin-transform-optional-chaining instead.
npm warn deprecated
@babel/plugin-proposal-private-property-in-object@7.21.11:  This
proposal has been merged to the ECMAScript standard and thus this
plugin is no longer maintained.  Please use
```

```
@babel/plugin-transform-private-property-in-object instead.
npm warn deprecated glob@7.2.3:  Glob versions prior to v9 are no
longer supported
npm warn deprecated @humanwhocodes/object-schema@2.0.3:  Use
@eslint/object-schema instead
npm warn deprecated domexception@2.0.1:  Use your platform's native
DOMException instead
npm warn deprecated w3c-hr-time@1.0.2:  Use your platform's native
performance.now() and performance.timeOrigin.
npm warn deprecated q@1.5.1:  You or someone you depend on is using Q,
the JavaScript Promise library that gave JavaScript developers strong
feelings about promises.  They can almost certainly migrate to the
native JavaScript promise now.  Thank you literally everyone for
joining me in this bet against the odds.  Be excellent to each other.
npm warn deprecated
npm warn deprecated (For a CapTP with native promises, see
@endo/eventual-send and @endo/captp)
npm warn deprecated sourcemap-codec@1.4.8:  Please use
@jridgewell/sourcemap-codec instead
npm warn deprecated workbox-cacheable-response@6.6.0:
workbox-background-sync@6.6.0
npm warn deprecated source-map@0.8.0-beta.0:  The work that was done
in this beta branch won't be included in future versions
npm warn deprecated workbox-google-analytics@6.6.0:  It is not
compatible with newer versions of GA starting with v4, as long as you
are using GAv3 it should be ok, but the package is not longer being
maintained
npm warn deprecated svgo@1.3.2:  This SVGO version is no longer
supported.  Upgrade to v2.x.x.
npm warn deprecated eslint@8.57.1:  This version is no longer
supported.  Please see https://eslint.org/version-support for other
options.
added 1388 packages, and audited 1389 packages in 32s
272 packages are looking for funding
run `npm fund` for details
9 vulnerabilities (3 moderate, 6 high)
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
frontend % npm install
npm warn EBADENGINE Unsupported engine
npm warn EBADENGINE package:  'react-router@7.9.4',
npm warn EBADENGINE required:    node:  '>=20.0.0' ,
```

```
npm warn EBADENGINE current:     node:  'v18.20.8', npm:  '10.8.2'
npm warn EBADENGINE
npm warn EBADENGINE Unsupported engine
npm warn EBADENGINE package:  'react-router-dom@7.9.4',
npm warn EBADENGINE required:     node:  '>=20.0.0' ,
npm warn EBADENGINE current:     node:  'v18.20.8', npm:  '10.8.2'
npm warn EBADENGINE
added 1 package, changed 1 package, and audited 1390 packages in 2s
272 packages are looking for funding
run `npm fund` for details
9 vulnerabilities (3 moderate, 6 high)
To address all issues (including breaking changes), run:
npm audit fix --force
Run `npm audit` for details.
frontend % npm start
> ai_scheduling_system@0.1.0 start
> react-scripts start
(node:24675) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE]
DeprecationWarning:  'onAfterSetupMiddleware' option is deprecated.
Please use the 'setupMiddlewares' option.  (Use `node
--trace-deprecation ...` to show where the warning was created)
(node:24675) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE]
DeprecationWarning:  'onBeforeSetupMiddleware' option is deprecated.
Please use the 'setupMiddlewares' option.  Starting the development
server...
Compiled with warnings.
...
```

2.2   issue 2: jose - print decrypt problem

```
(env) backend % uvicorn main:app --reload
...
File "/.../envs/env/lib/python3.10/site-packages/jose.py", line 546
print decrypt(deserialize_compact(jwt), 'k':key,
SyntaxError:  Missing parentheses in call to 'print'.  Did you mean
print(...)?
(env) backend % pip uninstall jose
Found existing installation:  jose 1.0.0
Uninstalling jose-1.0.0:
Would remove:
/.../envs/env/bin/jose
/.../envs/env/lib/python3.10/site-packages/jose-1.0.0.dist-info/*
```

```
/.../envs/env/lib/python3.10/site-packages/jose.py
Proceed (Y/n)?  y
Successfully uninstalled jose-1.0.0
(env) backend % pip install "python-jose[cryptography]"
Collecting python-jose[cryptography]
Downloading python_jose-3.5.0-py2.py3-none-any.whl.metadata (5.5 kB)
Collecting ecdsa!=0.15 (from python-jose[cryptography])
Downloading ecdsa-0.19.1-py2.py3-none-any.whl.metadata (29 kB)
Collecting rsa!=4.1.1,!=4.4,<5.0,>=4.0 (from
python-jose[cryptography])
Downloading rsa-4.9.1-py3-none-any.whl.metadata (5.6 kB)
Collecting pyasn1>=0.5.0 (from python-jose[cryptography])
Downloading pyasn1-0.6.1-py3-none-any.whl.metadata (8.4 kB)
Collecting cryptography>=3.4.0 (from python-jose[cryptography])
Downloading
cryptography-46.0.3-cp38-abi3-macosx_10_9_universal2.whl.metadata (5.7
kB)
Collecting cffi>=2.0.0 (from
cryptography>=3.4.0->python-jose[cryptography])
Using cached cffi-2.0.0-cp310-cp310-macosx_11_0_arm64.whl.metadata (2.6
kB)
Requirement already satisfied:  typing-extensions>=4.13.2 in
/.../envs/env/lib/python3.10/site-packages (from
cryptography>=3.4.0->python-jose[cryptography]) (4.15.0)
Collecting pycparser (from
cffi>=2.0.0->cryptography>=3.4.0->python-jose[cryptography])
Using cached pycparser-2.23-py3-none-any.whl.metadata (993 bytes)
Requirement already satisfied:  six>=1.9.0 in
/.../envs/env/lib/python3.10/site-packages (from
ecdsa!=0.15->python-jose[cryptography]) (1.17.0)
Downloading python_jose-3.5.0-py2.py3-none-any.whl (34 kB)
Downloading rsa-4.9.1-py3-none-any.whl (34 kB)
Downloading cryptography-46.0.3-cp38-abi3-macosx_10_9_universal2.whl
(7.2 MB)
7.2/7.2 MB 7.4 MB/s 0:00:01
Using cached cffi-2.0.0-cp310-cp310-macosx_11_0_arm64.whl (180 kB)
Downloading ecdsa-0.19.1-py2.py3-none-any.whl (150 kB)
Downloading pyasn1-0.6.1-py3-none-any.whl (83 kB)
Using cached pycparser-2.23-py3-none-any.whl (118 kB)
Installing collected packages:  pycparser, pyasn1, ecdsa, rsa, cffi,
python-jose, cryptography
Successfully installed cffi-2.0.0 cryptography-46.0.3 ecdsa-0.19.1
pyasn1-0.6.1 pycparser-2.23 python-jose-3.5.0 rsa-4.9.1
```

```
(env) backend % uvicorn main:app --reload
INFO: Will watch for changes in these directories:
['/Users/yuxuanzhang/Documents/GitHub/AI-Scheduling-System/backend']
INFO: Uvicorn running on http://127.0.0.1:8000 (Press CTRL+C to quit)
INFO: Started reloader process [8313] using StatReload
System time:  202510251311
UTC time:  202510250511
ML models loaded from /models directory
INFO: Started server process [8315]
INFO: Waiting for application startup.
INFO: Application startup complete.
```

2.3   issue 3: login network problem

```
INFO: 127.0.0.1:4349 - "POST /login/ HTTP/1.1" 500 Internal Server
Error
ERROR: Exception in ASGI application
Traceback (most recent call last):
pymongo.errors.ServerSelectionTimeoutError:
ac-unflmlu-shard-00-01.kjjyow6.mongodb.net:27017:  timed out
(configured timeouts:  socketTimeoutMS: 20000.0ms, connectTimeoutMS:
20000.0ms),
ac-unflmlu-shard-00-00.kjjyow6.mongodb.net:27017:  timed out
(configured timeouts:  socketTimeoutMS: 20000.0ms, connectTimeoutMS:
20000.0ms),
ac-unflmlu-shard-00-02.kjjyow6.mongodb.net:27017:  timed out
(configured timeouts:  socketTimeoutMS: 20000.0ms, connectTimeoutMS:
20000.0ms),
Timeout:  30s,
Topology Description:
<TopologyDescription id:  68fc690887003f723470fdb3, topology_type:
ReplicaSetNoPrimary,
servers:  [
<ServerDescription ('ac-unflmlu-shard-00-00.kjjyow6.mongodb.net',
27017) server_type:  Unknown,
rtt:  None,
error=NetworkTimeout('ac-unflmlu-shard-00-00.kjjyow6.mongodb.net:27017:
timed out
(configured timeouts:  socketTimeoutMS: 20000.0ms, connectTimeoutMS:
20000.0ms)')>,
<ServerDescription ('ac-unflmlu-shard-00-01.kjjyow6.mongodb.net',
27017) server_type:  Unknown,
```

```
rtt:  None,
error=NetworkTimeout('ac-unflmlu-shard-00-01.kjjyow6.mongodb.net:27017:
timed out
(configured timeouts:  socketTimeoutMS: 20000.0ms, connectTimeoutMS:
20000.0ms)')>,
<ServerDescription ('ac-unflmlu-shard-00-02.kjjyow6.mongodb.net',
27017) server_type:  Unknown,
rtt:  None,
error=NetworkTimeout('ac-unflmlu-shard-00-02.kjjyow6.mongodb.net:27017:
timed out
(configured timeouts:  socketTimeoutMS: 20000.0ms, connectTimeoutMS:
20000.0ms)')>
]>
```

Solution: don't use the WIFI of NUS

2.4   Issue 4: 404 Login API Not Found

Problem: When logging in, the browser console displayed:

```
POST http://127.0.0.1:8000/login/ 404 (Not Found)
AxiosError:  Request failed with status code 404
```

Cause: The backend had no `/login/` endpoint defined, or the frontend API path did not match the FastAPI route.

Solution:

1. Add a login endpoint in `main.py`:

```
from fastapi import FastAPI, HTTPException
from pydantic import BaseModel
app = FastAPI()
class UserLogin(BaseModel):
username:  str
password:  str
@app.post("/login/")
async def login(user:  UserLogin):
if user.username == "admin" and user.password == "123456":
return "message":  "Login successful"
raise HTTPException(status_code=401, detail="Invalid credentials")
```

2. Ensure the frontend API URL is configured in `frontend/.env`:

```
REACT_APP_API_URL=http://127.0.0.1:8000
```

3. Restart both backend and frontend.

Verification: The browser console should show a 200 OK response on login.

2.5   Issue 5: 500 Internal Server Error on Task Fetch

Problem: Task data could not be retrieved, returning:

```
500 Internal Server Error
```

Cause: The MongoDB task collections were misnamed or not initialized properly.

Solution: Ensure these constants are correctly defined in `models.py` or `database.py`:

```
FIXED_TASK_COLLECTION = "fixed-tasks"
FLEXIBLE_TASK_COLLECTION = "flexible-tasks"
```

Restart the backend afterward.