

## Assignment Evidence Report

This document contains evidence of completing all compulsory requirements for the assignment. Each screenshot is labeled and explained below.

### Virtual Environment Setup

Figure: Virtual Environment Setup

```
MINGW64:/c:/Users/Bilal Computers/Documents/research_agent

Bilal Computers@DESKTOP-N3B066L MINGW64 ~
$ cd Documents/research_agent

Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ python --version
Python 3.13.7

Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ python -m venv venv

Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ source venv/Scripts/activate
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ pip install --upgrade pip
Requirement already satisfied: pip in c:\users\bilal computers\documents\research_agent\venv\lib\site-packages (25.2)
(venv)
```

### Requirements Installed Successfully

Figure: Requirements Installed Successfully

```
MINGW64:/c:/Users/Bilal Computers/Documents/research_agent

Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ pip install -r requirements.txt
Collecting Flask==2.2.5 (from -r requirements.txt (line 1))
  Using cached Flask-2.2.5-py3-none-any.whl.metadata (3.9 kB)
Collecting requests==2.31.0 (from -r requirements.txt (line 2))
  Using cached requests-2.31.0-py3-none-any.whl.metadata (4.6 kB)
Collecting beautifulsoup4==4.12.2 (from -r requirements.txt (line 3))
  Using cached beautifulsoup4-4.12.2-py3-none-any.whl.metadata (3.6 kB)
Collecting scikit-learn==1.5.2 (from -r requirements.txt (line 4))
  Downloading scikit_learn-1.5.2-cp313-cp313-win_amd64.whl.metadata (13 kB)
Collecting nltk==3.8.1 (from -r requirements.txt (line 5))
  Downloading nltk-3.8.1-py3-none-any.whl.metadata (2.8 kB)
Collecting SQLAlchemy==2.0.20 (from -r requirements.txt (line 6))
  Downloading SQLAlchemy-2.0.20-py3-none-any.whl.metadata (9.4 kB)
Collecting alembic==1.11.1 (from -r requirements.txt (line 7))
  Downloading alembic-1.11.1-py3-none-any.whl.metadata (7.2 kB)
Collecting pytest==7.4.0 (from -r requirements.txt (line 8))
  Downloading pytest-7.4.0-py3-none-any.whl.metadata (8.0 kB)
Collecting python-dotenv==1.0.0 (from -r requirements.txt (line 9))
  Downloading python_dotenv-1.0.0-py3-none-any.whl.metadata (21 kB)
Collecting Werkzeug==2.2.2 (from Flask==2.2.5->-r requirements.txt (line 1))
  Downloading werkzeug-3.1.3-py3-none-any.whl.metadata (3.7 kB)
Collecting Jinja2==3.0 (from Flask==2.2.5->-r requirements.txt (line 1))
  Downloading jinja2-3.1.6-py3-none-any.whl.metadata (2.9 kB)
Collecting itsdangerous==2.0 (from Flask==2.2.5->-r requirements.txt (line 1))
  Downloading itsdangerous-2.2.0-py3-none-any.whl.metadata (1.9 kB)
Collecting click==8.0 (from Flask==2.2.5->-r requirements.txt (line 1))
  Downloading click-8.3.0-py3-none-any.whl.metadata (2.6 kB)
Collecting charset-normalizer<4,>=2 (from requests==2.31.0->-r requirements.txt (line 2))
  Downloading charset_normalizer-3.4.3-cp313-cp313-win_amd64.whl.metadata (37 kB)
Collecting idna<4,>=2.5 (from requests==2.31.0->-r requirements.txt (line 2))
  Downloading idna-3.10-py3-none-any.whl.metadata (10 kB)
Collecting urllib3<3,>=1.21.1 (from requests==2.31.0->-r requirements.txt (line 2))
  Downloading urllib3-2.5.0-py3-none-any.whl.metadata (6.5 kB)
Collecting certifi==2025.8.3 (from requests==2.31.0->-r requirements.txt (line 2))
  Downloading certifi-2025.8.3-py3-none-any.whl.metadata (2.4 kB)
Collecting soupsieve>1.2 (from beautifulsoup4==4.12.2->-r requirements.txt (line 3))
  Downloading soupsieve-2.8-py3-none-any.whl.metadata (4.6 kB)
Collecting numpy>=1.19.5 (from scikit-learn==1.5.2->-r requirements.txt (line 4))
  Using cached numpy-2.3.3-cp313-cp313-win_amd64.whl.metadata (60 kB)
Collecting scipy==1.6.0 (from scikit-learn==1.5.2->-r requirements.txt (line 4))
  Using cached scipy-1.16.2-cp313-cp313-win_amd64.whl.metadata (60 kB)
Collecting joblib==1.2.0 (from scikit-learn==1.5.2->-r requirements.txt (line 4))
  Downloading joblib-1.5.2-py3-none-any.whl.metadata (5.6 kB)
Collecting threadpoolctl>=3.1.0 (from scikit-learn==1.5.2->-r requirements.txt (line 4))
  Downloading threadpoolctl-3.6.0-py3-none-any.whl.metadata (13 kB)
Collecting regex==2021.8.3 (from nltk==3.8.1->-r requirements.txt (line 5))
  Downloading regex-2025.9.18-cp313-cp313-win_amd64.whl.metadata (41 kB)
Collecting tqdm (from nltk==3.8.1->-r requirements.txt (line 5))
  Downloading tqdm-4.67.1-py3-none-any.whl.metadata (57 kB)
```

## Running Unit Tests (pytest)

### Figure: Running Unit Tests (pytest)

```
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ pip install "SQLAlchemy==2.0.36"
Collecting SQLAlchemy==2.0.36
  Downloading SQLAlchemy-2.0.36-cp313-cp313-win_amd64.whl.metadata (9.9 kB)
Requirement already satisfied: typing-extensions>=4.6.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from SQLAlchemy==2.0.36) (4.15.0)
Downloading SQLAlchemy-2.0.36-cp313-cp313-win_amd64.whl (2.1 MB)
  2.1/2.1 MB 297.8 kB/s 0:00:07
Installing collected packages: SQLAlchemy
Successfully installed SQLAlchemy-2.0.36
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ python -m pytest -q
... [100%]

===== warnings summary =====
tests/test_storage.py::test_storage_cycle
  C:\Users\Bilal\Computers\Documents\research_agent\venv\lib\site-packages\sqlalchemy\sql\schema.py:3596: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a future version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
    return util.wrap_callable(lambda ctx: fn(), fn) # type: ignore

-- Docs: https://docs.pytest.org/en/stable/how-to/capture-warnings.html
3 passed, 1 warning in 32.27s
(venv)
```

## Flask Server Started Successfully

### Figure: Flask Server Started Successfully

```
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ ./run_demo.sh
Requirement already satisfied: Flask==2.2.5 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 1)) (2.2.5)
Requirement already satisfied: requests==2.31.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 2)) (2.31.0)
Requirement already satisfied: beautifulsoup4==4.12.2 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 3)) (4.12.2)
Requirement already satisfied: scikit-learn==1.5.2 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 4)) (1.5.2)
Requirement already satisfied: nltk==3.8.1 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 5)) (3.8.1)
Requirement already satisfied: SQLAlchemy==2.0.36 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 6)) (2.0.36)
Requirement already satisfied: alembic==1.11.1 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 7)) (1.11.1)
Requirement already satisfied: pytest==7.4.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 8)) (7.4.0)
Requirement already satisfied: python-dotenv==1.0.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from -r requirements.txt (line 9)) (1.0.0)
Requirement already satisfied: Werkzeug==2.2.2 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from Flask==2.2.5->-r requirements.txt (line 1)) (3.1.3)
Requirement already satisfied: Jinja2==3.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from Flask==2.2.5->-r requirements.txt (line 1)) (3.1.6)
Requirement already satisfied: itsdangerous==2.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from Flask==2.2.5->-r requirements.txt (line 1)) (2.2.0)
Requirement already satisfied: click==8.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from Flask==2.2.5->-r requirements.txt (line 1)) (8.3.0)
Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from requests==2.31.0->-r requirements.txt (line 2)) (3.4.3)
Requirement already satisfied: idna<4,>=2.5 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from requests==2.31.0->-r requirements.txt (line 2)) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from requests==2.31.0->-r requirements.txt (line 2)) (2.5.0)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from requests==2.31.0->-r requirements.txt (line 2)) (2025.8.3)
Requirement already satisfied: soupsieve>=1.2 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from beautifulsoup4==4.12.2->-r requirements.txt (line 3)) (2.8)
Requirement already satisfied: numpy>=1.19.5 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from scikit-learn==1.5.2->-r requirements.txt (line 4)) (2.3.3)
Requirement already satisfied: scipy>=1.6.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from scikit-learn==1.5.2->-r requirements.txt (line 4)) (1.16.2)
Requirement already satisfied: joblib>=1.2.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from scikit-learn==1.5.2->-r requirements.txt (line 4)) (1.5.2)
Requirement already satisfied: threadpoolctl>=3.1.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from scikit-learn==1.5.2->-r requirements.txt (line 4)) (3.6.0)
Requirement already satisfied: regex>=2021.8.3 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from nltk==3.8.1->-r requirements.txt (line 5)) (2025.9.18)
Requirement already satisfied: tqdm in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from nltk==3.8.1->-r requirements.txt (line 5)) (4.67.1)
Requirement already satisfied: typing-extensions>=4.6.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from SQLAlchemy==2.0.36->-r requirements.txt (line 6)) (4.15.0)
Requirement already satisfied: Mako in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from alembic==1.11.1->-r requirements.txt (line 7)) (1.3.10)
Requirement already satisfied: iniconfig in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from pytest==7.4.0->-r requirements.txt (line 8)) (2.1.0)
Requirement already satisfied: packaging in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from pytest==7.4.0->-r requirements.txt (line 8)) (25.0)
Requirement already satisfied: pluggy<2.0,>=0.12 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from pytest==7.4.0->-r requirements.txt (line 8)) (1.6.0)
Requirement already satisfied: colorama in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from pytest==7.4.0->-r requirements.txt (line 8)) (0.4.6)
Requirement already satisfied: MarkupSafe>=2.0 in c:\users\bilal\computers\documents\research_agent\venv\lib\site-packages (from Jinja2==3.0->Flask==2.2.5->-r requirements.txt (line 1)) (3.0.2)
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ export FLASK_APP=app.py
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ flask run --port=5000
* Serving Flask app 'app.api'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
```

MINGW64/c/Users/Bilal Computers/Documents/research\_agent

```
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ flask run --port=5000
* Serving Flask app 'app.api'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
127.0.0.1 - - [24/Sep/2025 14:18:29] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:18:51] "POST /process HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:21:49] "POST /process HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:22:12] "POST /process HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:22:37] "POST /process HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:22:55] "POST /process HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:26:18] "GET /documents HTTP/1.1" 200 -
127.0.0.1 - - [24/Sep/2025 14:26:37] "GET /documents/1 HTTP/1.1" 200 -
```

## Welcome Endpoint (/ GET)

Figure: Welcome Endpoint (/ GET)



The screenshot shows a web browser window with the address bar set to 127.0.0.1:5000. Below the address bar, there is a checkbox labeled "Pretty-print" which is checked. The main content area of the browser displays a JSON response: {"message": "Welcome to the Research Agent API"}.

```
{
  "message": "Welcome to the Research Agent API"
}
```



## Insert New Document - Example.com (/process POST)

Figure: Insert New Document - Example.com (/process POST)

```
MINGW64/c/Users/Bilal Computers
Bilal Computers@DESKTOP-N3B066L MINGW64 ~
$ curl -s -X POST -H "Content-Type: application/json" \
  -d '{"url":"https://example.com"}' \
  http://127.0.0.1:5000/process
{"document":{"content_snippet":"Example Domain Example Domain This domain is for use in illustrative examples in documents. You may use this\n domain in literature without prior coordinatio\n or asking for permission. More informat","created_at":"2025-09-24T06:10:48.393594","id":2,"keywords":["domain","example","use","illustrative","examples","documents","you","may","literature","without"],"summary":"Example Domain Example Domain This domain is for use in illustrative examples in documents. You may use this\n domain in literature without prior coordination or askin\n g for permission. More information...","title":"Example Domain","url":"https://example.com"},"status":"ok"}
Bilal Computers@DESKTOP-N3B066L MINGW64 ~
$ curl http://127.0.0.1:5000/documents
[{"content_snippet":"Example Domain Example Domain This domain is for use in illustrative examples in documents. You may use this\n domain in literature without prior coordination or asking\n for permission. More informat","created_at":"2025-09-24T06:10:48.393594","id":2,"keywords":["domain","example","use","illustrative","examples","documents","you","may","literature","without"],"summary":"Example Domain Example Domain This domain is for use in illustrative examples in documents. You may use this\n domain in literature without prior coordination or asking for permi\n ssion. More information...","title":"Example Domain","url":"https://example.com"},"content_snippet":"Some content","created_at":"2025-09-24T05:52:54.480869","id":1,"keywords":["test","content"],"summary":"short","title":"Test","url":"http://example.org/test"}]
```


## Insert New Document - BBC News / Wikipedia (/process POST)

Figure: Insert New Document - BBC News (/process POST)

```
MINGW64/c/Users/Bilal Computers/Documents/research_agent
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ curl -s -X POST -H "Content-Type: application/json" \
  -d '{"url":"https://www.bbc.com"}' \
  http://127.0.0.1:5000/process
{"document":{"content_snippet":"BBC Home - Breaking News, World News, US News, Sports, Business, Innovation, Climate, Culture, Travel, Video & Audio Skip to content British Broadcasting Corpor\n ation Home News Sport Business Innovatio","created_at":"2025-09-24T06:36:18.584518","id":3,"keywords":["bbc","ago","hrs","news","world","after","china","business","trump","says"],"summary":"BB\n C Home - Breaking News, World News, US News, Sports, Business, Innovation, Climate, Culture, Travel, Video & Audio Skip to content British Broadcasting Corporation Home News Sport Business Inn\n ovation Culture Arts Travel Earth Audio Video Live Home News Israel-Gaza War War in Ukraine US & Canada UK UK Politics England N. Ireland N. Ireland Politics Scotland Scotland Politics Wales W\n ales Politics Africa Asia China India Australia Europe Latin America Middle East In Pictures BBC InDepth BBC Verify Sport Business Executive Lounge Technology of Business Future of Business In\n novation Technology Science & Health Artificial Intelligence AI v the Mind Culture Film & TV Music Art & Design Style Books Entertainment News Arts Arts in Motion Travel Destinations Africa An\n tarcctica Asia Australia and Pacific Caribbean & Bermuda Central America Europe Middle East North America South America World\u2019s Table Culture & Experiences Adventures The Specialist To the\n Ends of The Earth Earth Natural Wonders Weather & Science Climate Solutions Sustainable Business Green Living Audio Podcast Categories Radio Audio FAQs Video Live News Live Sport Home Ne\n ws Sport Business Innovation Culture Arts Travel Earth Audio Video Live Weather Newsletters LIVE China evacuates nearly two million people after super typhoon kills 14 in Taiwan Super Typhoon\n Ragasa is now making its way towards southern China after leaving a trail of destruction across the region. Michelob Ultra becomes best-selling beer in the US Porsche shares plunge after annou\n ncing EV rollout delay YouTube content creators contributed \u00a332.2bn to UK economy in 2024 Sport 'Emotions got better of me' - Ekitike's 'stupidity' opens door for Isak On a night when Live\n rpool celebrated the goalscoring arrival of their record signing Alexander Isak, a moment of madness proves costly for their other in-form forward. Booker Prize shortlist choice was agony, say s\n Sarah Jessica Parker TV stations refuse to air 'insensitive' Kimmel's show after ABC lifts suspension Woman jailed over scheme to steal Graceland from Elvis Presley family Arts The 1958 Ital\n ian novel that skewered the super-rich Lampedusa's mid-20th-century novel The Leopard became a bestseller, then a revered film, and is now a lavish Netflix series.","title":"BBC Home - Breakin\n g News, World News, US News, Sports, Business, Innovation, Climate, Culture, Travel, Video & Audio","url":"https://www.bbc.com"},"status":"ok"}
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ curl -s -X POST -H "Content-Type: application/json" \
  -d '{"url":"https://www.wikipedia.org"}' \
  http://127.0.0.1:5000/process
{"document":{"content_snippet":"Wikipedia Wikipedia The Free Encyclopedia English 7,056,000+ articles \u00e6\u0097\u00a5\u00e6\u009c\u00ac\u00e8\u00aa\u009e 1,472,000+ \u00e8\u00a8\u0098\u00e4\n \u00ba\u008b \u00d0\u00a0\u00d1\u0083\u00d1\u0081\u00d1\u00d0\u00ba\u00d0\u00b8\u00d0\u00b9 2\u00c2\u00a0\u0063\u00c2\u00a0\u0000+ \u00d1\u0081\u00d1\u00d1\u0082\u00d0\u00b0\u00d1\u0082\u00d0\u00b5\n \u00d0\u00b9 Deutsch 3.051.000+ Artikel Fran\u00c3\u00a7ais 2\u00e2\u0080\u00af709\u00e2\u0080\u00af000+ articles ","created_at":"2025-09-24T06:42:10.169491","id":4,"keywords":["free","articles\n ","wikipedia","bahasa","english","ina","your","basa","deutsch","ais"],"summary":"Wikipedia Wikipedia The Free Encyclopedia English 7,056,000+ articles \u00e6\u0097\u00a5\u00e6\u009c\u00ac\u00e8\u00aa\u009e 1,472,000+\n \u00e8\u00a8\u0098\u00e4\u00ba\u008b \u00d0\u00a0\u00d1\u0083\u00d1\u0081\u00d1\u00d0\u00ba\u00d0\u00b8\u00d0\u00b9 2\u00c2\u00a0\u0063\u00c2\u00a0\u0000+ \u00d1\u0081\u00d1\u0082\u00d0\u00b0\u00d1\u0082\u00d0\u00b5\n \u00d0\u00b9 Deutsch 3.051.000+ Artikel Fran\u00c3\u00a7ais 2\u00e2\u0080\u00af709\u00e2\u0080\u00af000+ articles ","title":"Wikipedia Wikipedia The Free Encyclopedia English 7,056,000+ articles \u00e6\u0097\u00a5\u00e6\u009c\u00ac\u00e8\u00aa\u009e 1,472,000+\n \u00e8\u00a8\u0098\u00e4\u00ba\u008b \u00d0\u00a0\u00d1\u0083\u00d1\u0081\u00d1\u00d0\u00ba\u00d0\u00b8\u00d0\u00b9 2\u00c2\u00a0\u0063\u00c2\u00a0\u0000+ \u00d1\u0081\u00d1\u0082\u00d0\u00b0\u00d1\u0082\u00d0\u00b5\n \u00d0\u00b9 Deutsch 3.051.000+ Artikel Fran\u00c3\u00a7ais 2\u00e2\u0080\u00af709\u00e2\u0080\u00af000+ articles ","url":"https://www.wikipedia.org"},"status":"ok"}
```

## List All Documents (/documents GET)

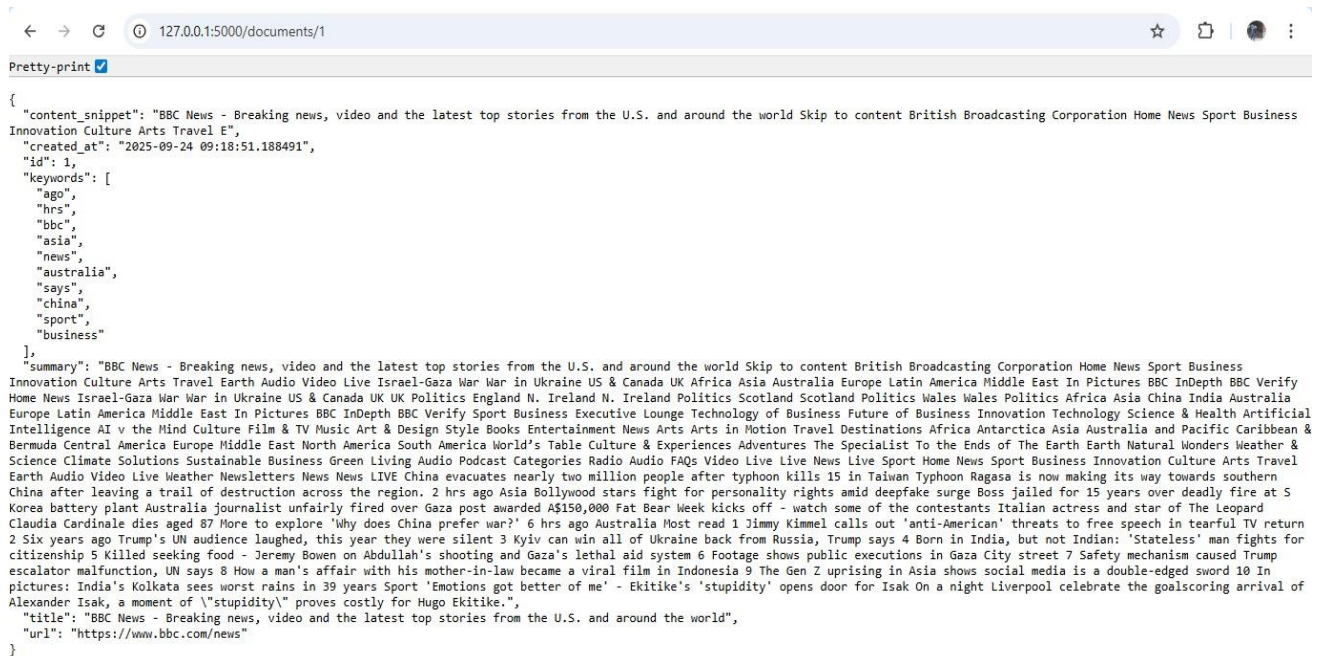
Figure: List All Documents (/documents GET)



```
[{"content_snippet": "GitHub \u2022 Build and ship software on a single, collaborative platform \u2022 GitHub Skip to content GitHub Universe 2025 Explore 100+ talks, demos, and workshops at Universe 2025. Choose your favorites. Nav", "created_at": "2025-09-24 09:22:55.255077", "id": 5, "keywords": ["github", "your", "code", "copilot", "platform", "security", "all", "you", "search", "explore"], "summary": "Navigation Menu Toggle navigation Sign in Platform GitHub Copilot Write better code with AI GitHub Spark New Build and deploy intelligent apps GitHub Models New Manage and compare prompts GitHub Advanced Security Find and fix vulnerabilities Actions Automate any workflow Codespaces Instant dev environments Issues Plan and track work Code Review Manage code changes Discussions Collaborate outside of code Code Search Find more, search less Explore Why GitHub Documentation GitHub Skills Blog Integrations GitHub Marketplace MCP Registry View all features Solutions By company size Enterprises Small and medium teams Startups Nonprofits By use case App Modernization DevSecOps DevOps CI/CD View all use cases By industry Healthcare Financial services Manufacturing Government View all industries View all solutions Resources Topics AI DevOps Security Software Development View all Explore Learning Pathways Events & Webinars Ebooks & Whitepapers Customer Stories Partners Executive Insights Open Source GitHub Sponsors Fund open source developers The README Project GitHub community articles Repositories Topics Trending Collections Enterprise Enterprise platform AI-powered developer platform Available add-ons GitHub Advanced Security Enterprise-grade security features Copilot for business Enterprise-grade AI features Premium Support Enterprise-grade 24/7 support Pricing Search or jump to... Search code, repositories, users, issues, pull requests... Search Clear Search syntax tips Provide feedback We read every piece of feedback, and take your input very seriously. By industry By size By use case By industry Technology Figma streamlines development and strengthens security Read customer story Automotive Mercedes-Benz standardizes source code and automates onboarding Read customer story Financial services Mercado Libre cuts coding time by 50% Read customer story Explore customer stories View all solutions Millions of developers and businesses call GitHub home Whether you're scaling your development process or just learning how to code, GitHub is where you belong. Subscribe Platform Features Enterprise Copilot AI Security Pricing Team Resources Roadmap Compare GitHub Ecosystem Developer API Partners Education GitHub CLI GitHub Desktop GitHub Mobile GitHub Marketplace MCP Registry Support Docs Community Forum Professional Services Premium Support Skills Status Contact GitHub Company About Why GitHub Customer stories Blog The README Project Careers Newsroom Inclusion Social Impact Shop \u2190 2025 GitHub, Inc.", "title": "GitHub \u2022 Build and ship software on a single, collaborative platform \u2022 GitHub", "url": "https://github.com"}, {"content_snippet": "Newest Questions - Stack Overflow Skip to main content Stack Overflow About Products For Teams Stack Overflow for Teams Where developers & technologists share private knowledge with coworkers Advertis", "created_at": "2025-09-24 09:22:37.712749", "id": 4, "keywords": []}]
```

## Get Document by ID (/documents/<id> GET)

Figure: Get Document by ID (/documents/<id> GET)

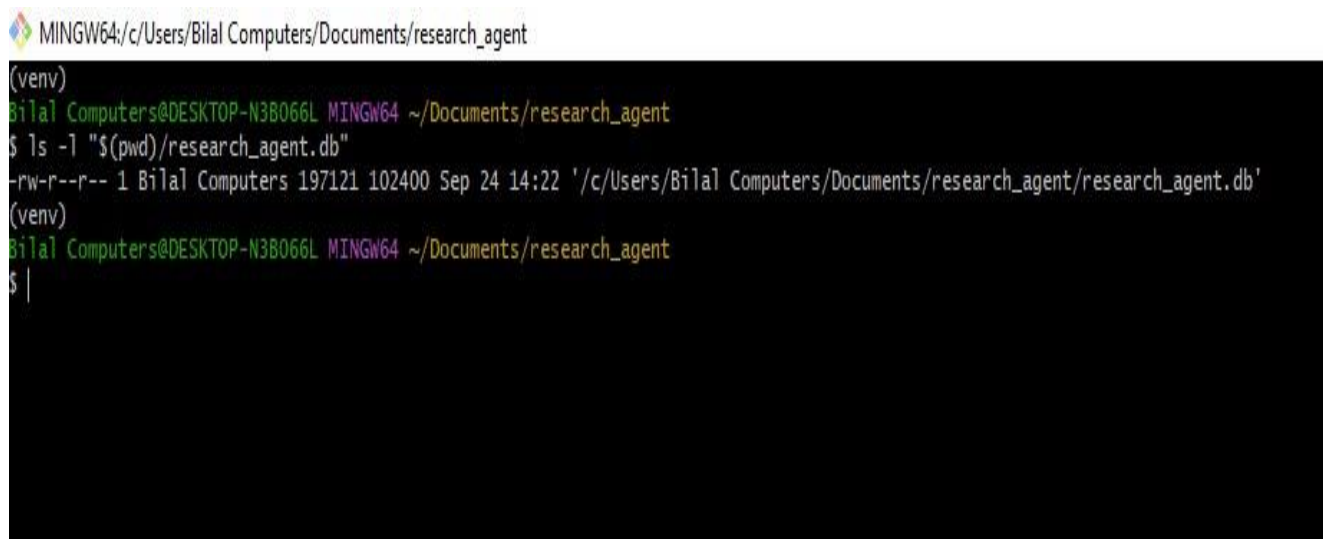


The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5000/documents/1". The page content is a JSON object representing a document. The JSON includes fields for "content\_snippet", "created\_at", "id", "keywords", and "summary". The "keywords" field is an array of strings including "ago", "hrs", "bbc", "asia", "news", "australia", "says", "china", "sport", and "business". The "summary" field contains a long text snippet starting with "BBC News - Breaking news, video and the latest top stories from the U.S. and around the world".

```
{
  "content_snippet": "BBC News - Breaking news, video and the latest top stories from the U.S. and around the world Skip to content British Broadcasting Corporation Home News Sport Business Innovation Culture Arts Travel E",
  "created_at": "2025-09-24 09:18:51.188491",
  "id": 1,
  "keywords": [
    "ago",
    "hrs",
    "bbc",
    "asia",
    "news",
    "australia",
    "says",
    "china",
    "sport",
    "business"
  ],
  "summary": "BBC News - Breaking news, video and the latest top stories from the U.S. and around the world Skip to content British Broadcasting Corporation Home News Sport Business Innovation Culture Arts Travel Earth Audio Video Live Israel-Gaza War War in Ukraine US & Canada UK Africa Asia Australia Europe Latin America Middle East In Pictures BBC InDepth BBC Verify Home News Israel-Gaza War War in Ukraine US & Canada UK UK Politics England N. Ireland N. Ireland Politics Scotland Scotland Politics Wales Wales Politics Africa Asia China India Australia Europe Latin America Middle East In Pictures BBC InDepth BBC Verify Sport Business Executive Lounge Technology of Business Future of Business Innovation Technology Science & Health Artificial Intelligence AI v the Mind Culture Film & TV Music Art & Design Style Books Entertainment News Arts Arts in Motion Travel Destinations Africa Antarctica Asia Australia and Pacific Caribbean & Bermuda Central America Europe Middle East North America South America World's Table Culture & Experiences Adventures The Specialist To the Ends of The Earth Earth Natural Wonders Weather & Science Climate Solutions Sustainable Business Green Living Audio Podcast Categories Radio Audio FAQs Video Live Live News Live Sport Home News Sport Business Innovation Culture Arts Travel Earth Audio Video Live Weather Newsletters News News LIVE China evacuates nearly two million people after typhoon kills 15 in Taiwan Typhoon Ragasa is now making its way towards southern China after leaving a trail of destruction across the region. 2 hrs ago Asia Bollywood stars fight for personality rights amid deepfake surge Boss jailed for 15 years over deadly fire at S Korea battery plant Australia journalist unfairly fired over Gaza post awarded A$150,000 Fat Bear Week kicks off - watch some of the contestants Italian actress and star of The Leopard Claudia Cardinale dies aged 87 More to explore 'Why does China prefer war?' 6 hrs ago Australia Most read 1 Jimmy Kimmel calls out 'anti-American' threats to free speech in tearful TV return 2 Six years ago Trump's UN audience laughed, this year they were silent 3 Kyiv can win all of Ukraine back from Russia, Trump says 4 Born in India, but not Indian: 'Stateless' man fights for citizenship 5 Killed seeking food - Jeremy Bowen on Abdullah's shooting and Gaza's lethal aid system 6 Footage shows public executions in Gaza City street 7 Safety mechanism caused Trump escalator malfunction, UN says 8 How a man's affair with his mother-in-law became a viral film in Indonesia 9 The Gen Z uprising in Asia shows social media is a double-edged sword 10 In pictures: India's Kolkata sees worst rains in 39 years Sport 'Emotions got better of me' - Ekitike's 'stupidity' opens door for Isak On a night Liverpool celebrate the goalscoring arrival of Alexander Isak, a moment of 'stupidity' proves costly for Hugo Ekitike.",
  "title": "BBC News - Breaking news, video and the latest top stories from the U.S. and around the world",
  "url": "https://www.bbc.com/news"
}
```

## Database File (research\_agent.db) Created

Figure: Database File (research\_agent.db) Created



The screenshot shows a terminal window with the title "MINGW64/c/Users/Bilal Computers/Documents/research\_agent". The terminal output shows the command "ls -l \$(pwd)/research\_agent.db" being executed, resulting in the file permissions "-rw-r--r-- 1 Bilal Computers 197121 102400 Sep 24 14:22 '/c/Users/Bilal Computers/Documents/research\_agent/research\_agent.db'".

```
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ ls -l "$(pwd)/research_agent.db"
-rw-r--r-- 1 Bilal Computers 197121 102400 Sep 24 14:22 '/c/Users/Bilal Computers/Documents/research_agent/research_agent.db'
(venv)
Bilal Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ |
```

## Export to CSV Completed Successfully

Figure: Export to CSV Completed Successfully



```

bital Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ curl -s -X POST -H "Content-Type: application/json" \
  -d '{"url": "https://github.com"}' \
  http://127.0.0.1:5000/process
{"document": {"content_snippet": "GitHub \u00b7 Build and ship software on a single, collaborative platform \u00b7 GitHub Skip to content GitHub Universe 2025 Explore 100+ talks, demos, and work\nshops at Universe 2025. Choose your favorites. Nav", "created_at": "2025-09-24 09:22:55.255077", "id": 5, "keywords": ["github", "your", "code", "copilot", "platform", "security", "all", "you", "search", "ex\nplore"], "summary": "Navigation Menu Toggle navigation Sign in Platform GitHub Copilot Write better code with AI GitHub Spark New Build and deploy intelligent apps GitHub Models New Manage and c\nompare prompts GitHub Advanced Security Find and fix vulnerabilities Actions Automate any workflow Codespaces Instant dev environments Issues Plan and track work Code Review Manage code change\ns Discussions Collaborate outside of code Code Search Find more, search less Explore Why GitHub Documentation GitHub Skills Blog Integrations GitHub Marketplace MCP Registry View all features\nSolutions By company size Enterprises Small and medium teams Startups Nonprofits By use case App Modernization DevSecOps DevOps CI/CD View all use cases By industry Healthcare Financial servic\nes Manufacturing Government View all industries View all solutions Resources Topics AI DevOps Security Software Development View all Explore Learning Pathways Events & Webinars Ebooks & Whitep\napers Customer Stories Partners Executive Insights Open Source GitHub Sponsors Fund open source developers The ReadME Project GitHub community articles Repositories Topics Trending Collections\nEnterprise enterprise platform AI-powered developer platform Available add-ons GitHub Advanced Security Enterprise-grade security features Copilot for business Enterprise-grade AI features Pr\nemium Support Enterprise-grade 24/7 support Pricing Search or jump to... Search code, repositories, users, issues, pull requests... Search Clear Search syntax tips Provide feedback We read eve\nry piece of feedback, and take your input very seriously. By industry By size By use case App Modernization DevSecOps DevOps CI/CD View all use cases By industry Healthcare Financial servic\nes Mercedes-Benz standardizes source code and automates onboarding Read customer story Financial services Mercado Libre cuts coding time by 50% Read customer story Explore customer stories\nView all solutions Millions of developers and businesses call GitHub home Whether you\u002019re scaling your development process or just learning how to code, GitHub is where you belong. Subscri\nbe Platform Features Enterprise Copilot AI Security Pricing Team Resources Roadmap Compare GitHub Ecosystem Developer API Partners Education GitHub CLI GitHub Desktop GitHub Mobile GitHub Mar\nketplace MCP Registry Support Docs Community Forum Professional Services Premium Support Skills Status Contact GitHub Company About Why GitHub Customer stories Blog The ReadME Project Careers\nNewsroom Inclusion Social Impact Shop \u00a0\u00a9 2025 GitHub, Inc.", "title": "GitHub \u00b7 Build and ship software on a single, collaborative platform \u00b7 GitHub", "url": "https://github.com/"},"s\ntatus": "ok"}
(venv)
bital Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$ python export_to_csv.py
Exported 5 documents to documents.csv
(venv)
bital Computers@DESKTOP-N3B066L MINGW64 ~/Documents/research_agent
$

```

## CSV File (documents.csv) in Project Folder

Figure: CSV File (documents.csv) in Project Folder

[illegible]