Erfan Habibi Ehsani

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Education

B.Sc. in Mathematics and Computer Science, Amirkabir University of Technology, Tehran, Iran 2020 – Present

Expected Graduation: 2025
Relevant Coursework: Data Structures, Algorithms, Machine Learning, Advanced Programming

Experience

C# and .NET Bootcamp Trainee, System Group (Hamkaran System), Tehran, Iran 2024

Highlights:

- Completed an intensive one-month bootcamp focused on C# and .NET technologies.
- Gained hands-on experience in developing applications using .NET framework and C#.
- Collaborated with peers on practical projects and received mentorship from industry professionals.
- Enhanced skills in object-oriented programming, software development best practices, and teamwork.

Projects

Server-Client Communication System github.com/Erfanhabibi/python-socket

Highlights:

- Implemented a server-client communication system using Python's sockets for transferring images and audio data.
- **Server:** Utilizes Tkinter for the GUI and OpenCV for capturing images from the webcam, along with PyAudio for recording audio.
- **Prerequisites:** Python 3.x, OpenCV , PyAudio, Pillow .
- **Usage:** Run the `server.py` script, click ”Start Server” to initialize, and capture images and record audio. Received files are saved in the `captured_images_server` and `captured_audio_server` folders.
- **Client:** Responsible for sending images and audio data to the server. Implemented separately based on the server's IP address and port numbers.
- **Notes:** Ensure proper network configurations for communication; adjust the IP address and port numbers in the code as needed.

Message Broker System github.com/Erfanhabibi/MessageBroker

Highlights:

- Developed a Message Broker system in C# to manage data transfer between producers and consumers while ensuring message order and persistence.
- **Endpoints:** Designed endpoints for producers to send messages and consumers to receive them.
- **Multithreading:** Implemented thread management to allow producers and consumers to define their required number of threads dynamically.
- **Message Persistence:** Ensured data durability by storing messages in files to prevent data loss in case of server failures or restarts.
- **Plugin System:** Designed a decoupled architecture using interfaces and attributes, enabling third-party developers to extend producer and consumer functionalities dynamically.
- **Retry Mechanism:** Implemented an automatic retry mechanism for failed message deliveries, ensuring messages are resent when the server is down and retried at configured intervals.
- **Logging System:** Developed a logging mechanism to track key operations such as message sending, receiving, storing, and recovery, with configurable log levels (Info, Warning, Error).

Skills

Programming Languages: Python, C++, Java, C, C#

Frameworks & Platforms: Django, Flutter, .NET, ASP.NET, Entity Framework

Machine Learning & Data Analysis: Python libraries (NumPy, pandas, scikit-learn, TensorFlow, Keras), SQL (MySQL, PostgreSQL)

Image Processing: Python libraries such as OpenCV, Pillow, scikit-image

Networking & Cybersecurity: TCP/IP, socket programming; fundamentals of network security, vulnerability assessment, and penetration testing

Tools & Others: Linux basics, Git, Algorithms, Data Structures, Problem Solving