Cyber Project

Using socket programming, I have developed a teaching program/game where the user will select which a number(1-5), each number representing an animal and the system will present information about the animal to them. The user can either learn about another animal or end the program.

Device Specifications:

Device name	MikeSurface
Processor	11th Gen Intel(R) Core(TM) i7-1185G7 @ 3.00GHz 3.00 GHz
Installed RAM	16.0 GB (15.8 GB usable)
Device ID	C78B60AF-D177-4A73-A71C-E5DC95EEA02B
Product ID	00356-06278-84084-AAOEM
System type	64-bit operating system, x64-based processor
Pen and touch	Pen and touch support with 10 touch points

Software Specifications:

Edition	Windows 11 Home
Version	22H2
Installed on	2/17/2023
OS build	22621.1555
Serial number	008158622557
Experience	Windows Feature Experience Pack 1000.22640.1000.0

Appendix

Server Code:

```
import socket


###Dictionary that has information of five animals stored

animalDictionary={1: "The cat is a domestic species of small carnivorous mammal. It is the only domesticated species in the family Felidae and is commonly referred to as the domestic cat or house cat to distinguish it from the wild members of the family",

        2: "The dog is a domesticated descendant of the wolf. Also called the domestic dog, it is derived from the extinct Pleistocene wolf, and the modern wolf is the dogs nearest living relative. Dogs were the first species to be domesticated by hunter-gatherers over 15,000 years ago before the development of agriculture.",

        3: "Kangaroos are four marsupials from the family Macropodidae. In common use the term is used to describe the largest species from this family, the red kangaroo, as well as the antilopine kangaroo, eastern grey kangaroo, and western grey kangaroo. Kangaroos are indigenous to Australia and New Guinea",

        4: "Snakes are elongated, limbless, carnivorous reptiles of the suborder Serpentes. Like all other squamates, snakes are ectothermic, amniote vertebrates covered in overlapping scales",

        5: "Fish are aquatic, craniate, gill-bearing animals that lack limbs with digits. Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups. Approximately 95% of living fish species are ray-finned fish, belonging to the class Actinopterygii, with around 99% of those being teleosts."

        }


# socket is created

server_socket = socket.socket()

server_socket.bind(('localhost', 5000))

server_socket.listen()


# defining functions

def connection():

   print ("Connecting to client")


print(connection())


def gameStartGreeting():

   return b"Welcome to the Animal Learning Server! \nEnter a number (1-5) to learn about an animal or press enter to quit: "


while True:

   # Accepted connection to client

   client_socket, client_address = server_socket.accept()

   print(f"Accepted connection from Animal Learning Server")
```

```
# Program begins, asking user to enter a number
client_socket.send(gameStartGreeting())
data = client_socket.recv(1024).decode().strip()

while data != '':
    # Convert the user input to an integer
    try:
        number = int(data)
    except ValueError:
        client_socket.send(b"Invalid input. Please enter a number (1-5) or press enter to quit: ")
        data = client_socket.recv(1024).decode().strip()
        continue

    # Look up the number's associated information in the dictionary
    if number in animalDictionary:
        info = animalDictionary[number]
    else:
        info = "Invalid Input, please try again"

    # Send the information back to the client
    client_socket.send(info.encode())
    print(f"Sent information to client: {info}")

    # Ask user to enter another number to continue learning or quit
    client_socket.send(b"Enter another number (1-5) or press enter to quit: ")
    data = client_socket.recv(1024).decode().strip()

# Close the connection to the client
client_socket.close()
print("Thank you for joining the Animal Learning Server, we hope that you learned something today!")
```

Client Code

```
import socket


# Create a socket and connect to the server
client_socket = socket.socket()
client_socket.connect(('localhost', 5000))
print("Connected to server")


while True:
    # Receive the prompt from the server and print it to the user
    prompt = client_socket.recv(1024).decode()
    print(prompt, end='')

    # Prompt the user to enter a number or quit
    data = input()

    # Send the user input to the server
    client_socket.send(data.encode())

    # Receive the information from the server
    info = client_socket.recv(1024).decode()
    print(f"Received information from server: {info}")

    # If the user input is empty, quit the program
    if not data:
        break

# Close the connection to the server
client_socket.close()
print("Thank you for joining the Animal Learning Server, we hope that you learned something today!")
```