--- main.py ---

```
from utils.MyBot import start_bot
from utils.Config import Config


# Initialize and run the bot
if __name__ == "__main__":
    print("Bot is starting...")
    start_bot(Config.DISCORD_TOKEN)  # Start the bot using the token from config
```

--- AccountBoundary.py ---

```
from discord.ext import commands
from control.AccountControl import AccountControl


class AccountBoundary(commands.Cog):
    def __init__(self):
        self.control = AccountControl()  # Initialize control object

    @commands.command(name="fetch_all_accounts")
    async def fetch_all_accounts(self, ctx):
        await ctx.send("Command recognized, passing data to control.")

        # Pass the command to the control object
        commandToPass = "fetch_all_accounts"
        result = self.control.receive_command(commandToPass)

        # Send the result (prepared by control) back to the user
```

```
    await ctx.send(result)


@commands.command(name="fetch_account_by_website")
async def fetch_account_by_website(self, ctx, website: str):
    await ctx.send(f"Command recognized, passing data to control for website {website}.")

    # Pass the command and website to control
    commandToPass = "fetch_account_by_website"
    result = self.control.receive_command(commandToPass, website)

    # Send the result (prepared by control) back to the user
    await ctx.send(result)


@commands.command(name="add_account")
async def add_account(self, ctx, username: str, password: str, website: str):
    await ctx.send("Command recognized, passing data to control.")

    # Pass the command and account details to control
    commandToPass = "add_account"
    result = self.control.receive_command(commandToPass, username, password, website)

    # Send the result (prepared by control) back to the user
    await ctx.send(result)
```

```
    @commands.command(name="delete_account")
    async def delete_account(self, ctx, account_id: int):
        await ctx.send(f"Command recognized, passing data to control to delete account with ID {account_id}.")

        # Pass the command and account ID to control
        commandToPass = "delete_account"
        result = self.control.receive_command(commandToPass, account_id)

        # Send the result (prepared by control) back to the user
        await ctx.send(result)



--- AvailabilityBoundary.py ---
from discord.ext import commands
from control.AvailabilityControl import AvailabilityControl

class AvailabilityBoundary(commands.Cog):
    def __init__(self):
        # Initialize control objects directly
        self.availability_control = AvailabilityControl()

    @commands.command(name="check_availability")
    async def check_availability(self, ctx, url: str = None, date_str=None):
        await ctx.send("Command recognized, passing data to control.")

        # Pass the command and data to the control layer using receive_command
```

```
        command_to_pass = "check_availability"
        result = await self.availability_control.receive_command(command_to_pass, url, date_str)

        # Send the result back to the user
        await ctx.send(result)


    @commands.command(name="start_monitoring_availability")
     async def start_monitoring_availability(self, ctx, url: str = None, date_str=None, frequency: int =
15):
        await ctx.send("Command recognized, passing data to control.")

        # Pass the command and data to the control layer using receive_command
        command_to_pass = "start_monitoring_availability"
          response = await self.availability_control.receive_command(command_to_pass, url, date_str,
frequency)

        # Send the result back to the user
        await ctx.send(response)


    @commands.command(name='stop_monitoring_availability')
    async def stop_monitoring_availability(self, ctx):
        """Command to stop monitoring the price."""
        await ctx.send("Command recognized, passing data to control.")
        # Pass the command to the control layer
        command_to_pass = "stop_monitoring_availability"
```

```
        response = await self.availability_control.receive_command(command_to_pass)
        await ctx.send(response)


--- BrowserBoundary.py ---
from discord.ext import commands
from control.BrowserControl import BrowserControl
from DataObjects.global_vars import GlobalState

class BrowserBoundary(commands.Cog):
    def __init__(self):
        self.browser_control = BrowserControl()  # Initialize the control object

    @commands.command(name='launch_browser')
    async def launch_browser(self, ctx):
        await ctx.send(f"Command recognized, passing to control object.")

            result = self.browser_control.receive_command(GlobalState.user_message)       # Pass the
updated user_message to the control object
        await ctx.send(result)                                          # Send the result back to the user

    @commands.command(name="close_browser")
    async def stop_bot(self, ctx):
        await ctx.send(f"Command recognized, passing to control object.")

        result = self.browser_control.receive_command(GlobalState.user_message)
        await ctx.send(result)
```

--- HelpBoundary.py ---

```
from discord.ext import commands
from control.HelpControl import HelpControl

class HelpBoundary(commands.Cog):
    def __init__(self):
        self.control = HelpControl()  # Initialize control object

    @commands.command(name="project_help")
    async def project_help(self, ctx):
        await ctx.send("Command recognized, passing data to control.")

        # Pass the command to the control object
        commandToPass = "project_help"
        response = self.control.receive_command(commandToPass)

        # Send the response back to the user
        await ctx.send(response)
```

--- LoginBoundary.py ---

```
from discord.ext import commands
from control.LoginControl import LoginControl

class LoginBoundary(commands.Cog):
```

```
    def __init__(self):
        self.login_control = LoginControl()

    @commands.command(name='login')
    async def login(self, ctx, site: str):
        await ctx.send("Command recognized, passing data to control.")

        # Pass the command and site to control
        commandToPass = "login"
        result = await self.login_control.receive_command(commandToPass, site)

        # Send the result back to the user
        await ctx.send(result)



--- NavigationBoundary.py ---
from discord.ext import commands
from control.NavigationControl import NavigationControl

class NavigationBoundary(commands.Cog):

    def __init__(self):
        self.navigation_control = NavigationControl()                    # Initialize the control object

    @commands.command(name='navigate_to_website')
    async def navigate_to_website(self, ctx, url: str=None):
            await ctx.send("Command recognized, passing the data to control object.")        # Inform the
```

user that the command is recognized

```
        commandToPass = "navigate_to_website"
          result = self.navigation_control.receive_command(commandToPass, url)              # Pass the
command and URL to the control object
        await ctx.send(result)                                                  # Send the result back to the user
```

--- PriceBoundary.py ---

```
from discord.ext import commands
from control.PriceControl import PriceControl

class PriceBoundary(commands.Cog):
    def __init__(self):
        # Initialize control objects directly
        self.price_control = PriceControl()

    @commands.command(name='get_price')
    async def get_price(self, ctx, url: str=None):
        """Command to get the price from the given URL."""
        await ctx.send("Command recognized, passing data to control.")
        # Pass the command to the control layer
        command_to_pass = "get_price"
        result = await self.price_control.receive_command(command_to_pass, url)
        await ctx.send(result)
```

```
    @commands.command(name='start_monitoring_price')
    async def start_monitoring_price(self, ctx, url: str = None, frequency: int = 20):
        """Command to monitor price at given frequency."""
            await ctx.send(f"Command recognized, starting price monitoring at {url} every {frequency} second(s).")
        # Pass the command and data to the control layer
        command_to_pass = "start_monitoring_price"
        response = await self.price_control.receive_command(command_to_pass, url, frequency)
        await ctx.send(response)


    @commands.command(name='stop_monitoring_price')
    async def stop_monitoring_price(self, ctx):
        """Command to stop monitoring the price."""
        await ctx.send("Command recognized, passing data to control.")
        # Pass the command to the control layer
        command_to_pass = "stop_monitoring_price"
        response = await self.price_control.receive_command(command_to_pass)
        await ctx.send(response)


--- StopBoundary.py ---
from discord.ext import commands
from control.StopControl import StopControl

class StopBoundary(commands.Cog):
    def __init__(self):
```

```
        self.control = StopControl()  # Initialize control object

    @commands.command(name="stop_bot")
    async def stop_bot(self, ctx):
        await ctx.send("Command recognized, passing data to control.")

        # Pass the command to the control object
        commandToPass = "stop_bot"
        result = await self.control.receive_command(commandToPass, ctx)
        print(result)  # Send the result back to the Terminal. since the bot is shut down, it won't be able to send the message back to the user.
```

--- __init__.py ---

```
#empty init file
```

--- AccountControl.py ---

```
from DataObjects.AccountDAO import AccountDAO

class AccountControl:
    def __init__(self):
        self.account_dao = AccountDAO()  # DAO for database operations

    def receive_command(self, command_data, *args):
        """Handle all account-related commands and process business logic."""
        print("Data received from boundary:", command_data)
```

```
    if command_data == "fetch_all_accounts":
        return self.fetch_all_accounts()

    elif command_data == "fetch_account_by_website":
        website = args[0] if args else None
        return self.fetch_account_by_website(website)

    elif command_data == "add_account":
        username, password, website = args if args else (None, None, None)
        return self.add_account(username, password, website)

    elif command_data == "delete_account":
        account_id = args[0] if args else None
        return self.delete_account(account_id)

    else:
        result = "Invalid command."
        print(result)
        return result

def add_account(self, username: str, password: str, website: str):
    """Add a new account to the database."""
    self.account_dao.connect()
    result = self.account_dao.add_account(username, password, website)
    self.account_dao.close()

       result_message = f"Account for {website} added successfully." if result else f"Failed to add
```

```
account for {website}."
        print(result_message)
        return result_message

    def delete_account(self, account_id: int):
        """Delete an account by ID."""
        self.account_dao.connect()
        try:
            result = self.account_dao.delete_account(account_id)
        except Exception as e:
            print(f"Error deleting account: {e}")
            return "Error deleting account."
        self.account_dao.reset_id_sequence()
        self.account_dao.close()

         result_message = f"Account with ID {account_id} deleted successfully." if result else f"Failed to
delete account with ID {account_id}."
        print(result_message)
        return result_message

    def fetch_all_accounts(self):
        """Fetch all accounts using the DAO."""
        self.account_dao.connect()
        try:
            accounts = self.account_dao.fetch_all_accounts()
        except Exception as e:
            return "Error fetching accounts."
```

```
        self.account_dao.close()

        if accounts:
            account_list = "\n".join([f"ID: {acc[0]}, Username: {acc[1]}, Password: {acc[2]}, Website: {acc[3]}" for acc in accounts])
            result_message = f"Accounts:\n{account_list}"
        else:
            result_message = "No accounts found."

        print(result_message)
        return result_message

    def fetch_account_by_website(self, website: str):
        """Fetch an account by website."""
        try:
            self.account_dao.connect()
            account = self.account_dao.fetch_account_by_website(website)
            self.account_dao.close()

            # Logic to format the result within the control layer
            if account:
                return account
            else:
                return f"No account found for {website}."

        except Exception as e:
            return f"Error: {str(e)}"
```

```
--- AvailabilityControl.py ---
import asyncio
from entity.AvailabilityEntity import AvailabilityEntity
from datetime import datetime
from utils.css_selectors import Selectors

class AvailabilityControl:
    def __init__(self):
        self.availability_entity = AvailabilityEntity()  # Initialize the entity
        self.is_monitoring = False  # Monitor state
        self.results = []  # List to store monitoring results

    async def receive_command(self, command_data, *args):
        """Handle all commands related to availability."""
        print("Data received from boundary:", command_data)

        if command_data == "check_availability":
            url = args[0]
            date_str = args[1] if len(args) > 1 else None
            return await self.check_availability(url, date_str)

        elif command_data == "start_monitoring_availability":
            url = args[0]
            date_str = args[1] if len(args) > 1 else None
            frequency = args[2] if len(args) > 2 else 15
```

```
        return await self.start_monitoring_availability(url, date_str, frequency)

    elif command_data == "stop_monitoring_availability":
        return self.stop_monitoring_availability()

    else:
        print("Invalid command.")
        return "Invalid command."



async def check_availability(self, url: str, date_str=None):
    """Handle availability check and export results."""
    print("Checking availability...")
    # Call the entity to check availability
    try:
        if not url:
            selectors = Selectors.get_selectors_for_url("opentable")
            url = selectors.get('availableUrl')
            if not url:
                return "No URL provided, and default URL for openTable could not be found."
            print("URL not provided, default URL for openTable is: " + url)

        availability_info = await self.availability_entity.check_availability(url, date_str)

    # Prepare the result
        result = f"Checked availability: {availability_info}"
    except Exception as e:
```

```
        result = f"Failed to check availability: {str(e)}"
    print(result)

    # Create a DTO (Data Transfer Object) for export
    data_dto = {
        "command": "check_availability",
        "url": url,
        "result": result,
        "entered_date": datetime.now().strftime('%Y-%m-%d'),
        "entered_time": datetime.now().strftime('%H:%M:%S')
    }

    # Export data to Excel/HTML via the entity
    self.availability_entity.export_data(data_dto)
    return result



async def start_monitoring_availability(self, url: str, date_str=None, frequency=15):
    """Start monitoring availability at a specified frequency."""
    print("Monitoring availability")
    if self.is_monitoring:
        result = "Already monitoring availability."
        print(result)
        return result

    self.is_monitoring = True  # Set monitoring to active
    try:
```

```
        while self.is_monitoring:
            # Call entity to check availability
            result = await self.check_availability(url, date_str)
            self.results.append(result) # Store the result in the list
            await asyncio.sleep(frequency)  # Wait for the specified frequency before checking again

    except Exception as e:
        error_message = f"Failed to monitor availability: {str(e)}"
        print(error_message)
        return error_message

    return self.results



def stop_monitoring_availability(self):
    """Stop monitoring availability."""
    print("Stopping availability monitoring...")
    result = None
    try:
        if not self.is_monitoring:
            # If no monitoring session is active
            result = "There was no active availability monitoring session. Nothing to stop."
        else:
            # Stop monitoring and collect results
            self.is_monitoring = False
            result = "Results for availability monitoring:\n"
            result += "\n".join(self.results)
```

```
            result = result + "\n" + "\nAvailability monitoring stopped successfully!"
            print(result)
        except Exception as e:
            # Handle any error that occurs
            result = f"Error stopping availability monitoring: {str(e)}"

        return result
```

--- BrowserControl.py ---

```
from entity.BrowserEntity import BrowserEntity

class BrowserControl:

    def __init__(self):
        # Initialize the entity object inside the control layer
        self.browser_entity = BrowserEntity()

    def receive_command(self, command_data):
        # Validate the command
        print("Data Received from boundary object: ", command_data)
        if command_data == "launch_browser":
            # Call the entity to perform the actual operation
            try:
                result = self.browser_entity.launch_browser()
                return result
```

```
            except Exception as e:
                return str(e)  # Return the error message

        elif command_data == "close_browser":
            # Call the entity to perform the close operation
            try:
                result = self.browser_entity.close_browser()
                return result
            except Exception as e:
                return str(e)  # Return the error message

        else:
            return "Invalid command."



--- HelpControl.py ---
class HelpControl:
    def receive_command(self, command_data):
        """Handles the command and returns the appropriate message."""
        print("Data received from boundary:", command_data)

        if command_data == "project_help":
            help_message = (
                "Here are the available commands:\n"
                "!project_help - Get help on available commands.\n"
                "!fetch_all_accounts - Fetch all stored accounts.\n"
                "!add_account 'username' 'password' 'website' - Add a new account to the database.\n"
```

```
            "!fetch_account_by_website 'website' - Fetch account details by website.\n"
            "!delete_account 'account_id' - Delete an account by its ID.\n"
            "!launch_browser - Launch the browser.\n"
            "!close_browser - Close the browser.\n"
            "!navigate_to_website 'url' - Navigate to a specified website.\n"
            "!login 'website' - Log in to a website (e.g., !login bestbuy).\n"
            "!get_price 'url' - Check the price of a product on a specified website.\n"
              "!start_monitoring_price 'url' 'frequency' - Start monitoring a product's price at a specific interval (frequency in minutes).\n"
            "!stop_monitoring_price - Stop monitoring the product's price.\n"
            "!check_availability 'url' - Check availability for a restaurant or service.\n"
            "!start_monitoring_availability 'url' 'frequency' - Monitor availability at a specific interval.\n"
            "!stop_monitoring_availability - Stop monitoring availability.\n"
            "!stop_bot - Stop the bot.\n"
        )

        return help_message
    else:
        return "Invalid command."


--- LoginControl.py ---
from control.AccountControl import AccountControl
from entity.BrowserEntity import BrowserEntity
from utils.css_selectors import Selectors

class LoginControl:
```

```
def __init__(self):
    self.browser_entity = BrowserEntity()
    self.account_control = AccountControl()  # Manages account data

async def receive_command(self, command_data, site=None):
    """Handle login command and perform business logic."""
    print("Data received from boundary:", command_data)

    if command_data == "login" and site:
        try:
            # Fetch account credentials from the entity
            account_info = self.account_control.fetch_account_by_website(site)
            if not account_info:
                return f"No account found for {site}"

            username, password = account_info[0], account_info[1]
            print(f"Username: {username}, Password: {password}")

            # Get the URL from the CSS selectors
            url = Selectors.get_selectors_for_url(site).get('url')
            print(url)
            if not url:
                return f"URL for {site} not found."

            result = await self.browser_entity.login(url, username, password)
        except Exception as e:
            result = str(e)
```

```
            return result
        else:
            return "Invalid command or site."
```

--- NavigationControl.py ---

```
from entity.BrowserEntity import BrowserEntity
from utils.css_selectors import Selectors

class NavigationControl:

    def __init__(self):
        # Initialize the entity object inside the control layer
        self.browser_entity = BrowserEntity()

    def receive_command(self, command_data, url=None):
        # Validate the command
        print("Data Received from boundary object: ", command_data)
        if command_data == "navigate_to_website":
            if not url:
                selectors = Selectors.get_selectors_for_url("google")
                url = selectors.get('url')
                if not url:
                    return "No URL provided, and default URL for google could not be found."
                print("URL not provided, default URL for Google is: " + url)
            try:
                result = self.browser_entity.navigate_to_website(url) # Call the entity to perform the actual
```

```
operation
            except Exception as e:
                result = str(e)
            return result
        else:
            return "Invalid command."



--- PriceControl.py ---
import asyncio
from datetime import datetime
from entity.PriceEntity import PriceEntity
from utils.css_selectors import Selectors

class PriceControl:
    def __init__(self):
        self.price_entity = PriceEntity()  # Initialize PriceEntity for fetching and export
        self.is_monitoring = False  # Monitoring flag
        self.results = []  # Store monitoring results


    async def receive_command(self, command_data, *args):
        """Handle all price-related commands and process business logic."""
        print("Data received from boundary:", command_data)

        if command_data == "get_price":
            url = args[0] if args else None
```

```
        return await self.get_price(url)

    elif command_data == "start_monitoring_price":
        url = args[0] if args else None
        frequency = args[1] if len(args) > 1 else 20
        return await self.start_monitoring_price(url, frequency)

    elif command_data == "stop_monitoring_price":
        return self.stop_monitoring_price()

    else:
        return "Invalid command."



async def get_price(self, url: str):
    """Handle fetching the price from the entity."""
    print("getting price...")
    try:
        if not url:
            selectors = Selectors.get_selectors_for_url("bestbuy")
            url = selectors.get('priceUrl')
            if not url:
                return "No URL provided, and default URL for BestBuy could not be found."
            print("URL not provided, default URL for BestBuy is: " + url)

        # Fetch the price from the entity
```

```
        result = self.price_entity.get_price_from_page(url)
        print(f"Price found: {result}")
        data_dto = {
                "command": "monitor_price",
                "url": url,
                "result": result,
                "entered_date": datetime.now().strftime('%Y-%m-%d'),
                "entered_time": datetime.now().strftime('%H:%M:%S')
            }

            # Pass the DTO to PriceEntity to handle export
        self.price_entity.export_data(data_dto)

    except Exception as e:
        return f"Failed to fetch price: {str(e)}"

    return result



async def start_monitoring_price(self, url: str, frequency=20):
    """Start monitoring the price at a given interval."""
    print("Starting price monitoring...")
    try:
        if self.is_monitoring:
            return "Already monitoring prices."

        self.is_monitoring = True
```

```
        previous_price = None

        while self.is_monitoring:
            current_price = await self.get_price(url)
            # Determine price changes and prepare the result
            result = ""
            if current_price:
                if previous_price is None:
                    result = f"Starting price monitoring. Current price: {current_price}"
                elif current_price > previous_price:
                    result = f"Price went up! Current price: {current_price} (Previous: {previous_price})"
                elif current_price < previous_price:
                                result = f"Price went down! Current price: {current_price} (Previous:
{previous_price})"
                else:
                    result = f"Price remains the same: {current_price}"
                previous_price = current_price
            else:
                result = "Failed to retrieve the price."

            # Add the result to the results list
            self.results.append(result)
            await asyncio.sleep(frequency)

    except Exception as e:
        self.results.append(f"Failed to monitor price: {str(e)}")
```

```
    def stop_monitoring_price(self):
        """Stop the price monitoring loop."""
        print("Stopping price monitoring...")
        result = None
        try:
            if not self.is_monitoring:
                # If no monitoring session is active
                result = "There was no active price monitoring session. Nothing to stop."
            else:
                # Stop monitoring and collect results
                self.is_monitoring = False
                result = "Results for price monitoring:\n"
                result += "\n".join(self.results)
                result = result + "\n" +"\nPrice monitoring stopped successfully!"
                print(result)
        except Exception as e:
            # Handle any error that occurs
            result = f"Error stopping price monitoring: {str(e)}"

        return result
```

--- StopControl.py ---

```
import discord
```

```
class StopControl:
    async def receive_command(self, command_data, ctx):
        """Handle the stop bot command."""
        print("Data received from boundary:", command_data)

        if command_data == "stop_bot":
            # Get the bot from the context (ctx) dynamically
            bot = ctx.bot  # This extracts the bot instance from the context
            await ctx.send("The bot is shutting down...")
            print("Bot is shutting down...")
            await bot.close()  # Close the bot
            result = "Bot has been shut down."
            print(result)
            return result
        else:
            result = "Invalid command."
            return result



--- __init__.py ---
#empty init file

--- AccountDAO.py ---
import psycopg2
from utils.Config import Config
```

```
class AccountDAO:
    def __init__(self):
        self.dbname = "postgres"
        self.user = "postgres"
        self.host = "localhost"
        self.port = "5432"
        self.password = Config.DATABASE_PASSWORD

    def connect(self):
        """Establish a database connection."""
        try:
            self.connection = psycopg2.connect(
                dbname=self.dbname,
                user=self.user,
                password=self.password,
                host=self.host,
                port=self.port
            )
            self.cursor = self.connection.cursor()
            print("Database Connection Established.")
        except Exception as error:
            print(f"Error connecting to the database: {error}")
            self.connection = None
            self.cursor = None

    def add_account(self, username: str, password: str, website: str):
        """Add a new account to the database using structured data."""
```

```
        try:
            # Combine DTO logic here by directly using the parameters
            query = "INSERT INTO accounts (username, password, website) VALUES (%s, %s, %s)"
            values = (username, password, website)
            self.cursor.execute(query, values)
            self.connection.commit()
            print(f"Account {username} added successfully.")
            return True
        except Exception as error:
            print(f"Error inserting account: {error}")
            return False

    def fetch_account_by_website(self, website):
        """Fetch account credentials for a specific website."""
        try:
                query = "SELECT username, password FROM accounts WHERE LOWER(website) =
LOWER(%s)"
            self.cursor.execute(query, (website,))
            result = self.cursor.fetchone()
            print(result)
            return result
        except Exception as error:
            print(f"Error fetching account for website {website}: {error}")
            return None

    def fetch_all_accounts(self):
        """Fetch all accounts from the database."""
```

```
    try:
        query = "SELECT id, username, password, website FROM accounts"
        self.cursor.execute(query)
        result = self.cursor.fetchall()
        print(result)
        return result
    except Exception as error:
        print(f"Error fetching accounts: {error}")
        return []

def delete_account(self, account_id):
    """Delete an account by its ID."""
    try:
        self.cursor.execute("DELETE FROM accounts WHERE id = %s", (account_id,))
        self.connection.commit()
        if self.cursor.rowcount > 0:  # Check if any rows were affected
            print(f"Account with ID {account_id} deleted successfully.")
            return True
        else:
            print(f"No account found with ID {account_id}.")
            return False
    except Exception as error:
        print(f"Error deleting account: {error}")
        return False

def reset_id_sequence(self):
    """Reset the ID sequence to the maximum ID."""
```

```
        try:
            reset_query = "SELECT setval('accounts_id_seq', (SELECT MAX(id) FROM accounts))"
            self.cursor.execute(reset_query)
            self.connection.commit()
            print("ID sequence reset successfully.")
        except Exception as error:
            print(f"Error resetting ID sequence: {error}")

    def close(self):
        """Close the database connection."""
        if self.cursor:
            self.cursor.close()
        if self.connection:
            self.connection.close()
            print("Database connection closed.")



--- global_vars.py ---
# global_vars.py

class GlobalState:
    user_message = None

    @classmethod
    def reset_user_message(cls):
        """Reset the global user_message variable to None."""
        cls.user_message = None
```

```
--- AvailabilityEntity.py ---
import asyncio
from utils.exportUtils import ExportUtils
from entity.BrowserEntity import BrowserEntity
from utils.css_selectors import Selectors
from selenium.webdriver.common.by import By
from selenium.webdriver.support.ui import WebDriverWait
from selenium.webdriver.support import expected_conditions as EC

class AvailabilityEntity:
    def __init__(self):
        self.browser_entity = BrowserEntity()



    async def check_availability(self, url: str, date_str=None, timeout=5):
        try:
            # Use BrowserEntity to navigate to the URL
            self.browser_entity.navigate_to_website(url)

            # Get selectors for the given URL
            selectors = Selectors.get_selectors_for_url(url)

            # Perform date selection (optional)
            if date_str:
                try:
```

```
                    date_field = self.browser_entity.driver.find_element(By.CSS_SELECTOR,
selectors['date_field'])
                date_field.click()
                await asyncio.sleep(1)
                    date_button = self.browser_entity.driver.find_element(By.CSS_SELECTOR,
f"{selectors['select_date']} button[aria-label*='{date_str}']")
                date_button.click()
            except Exception as e:
                return f"Failed to select the date: {str(e)}"

        await asyncio.sleep(2)  # Wait for updates to load

        # Initialize flags for select_time and no_availability elements
        select_time_seen = False
        no_availability_seen = False
        try:
            # Check if 'select_time' is available within the given timeout
            WebDriverWait(self.browser_entity.driver, timeout).until(
                EC.presence_of_element_located((By.CSS_SELECTOR, selectors['select_time']))
            )
            select_time_seen = True  # If found, set the flag to True
        except:
            select_time_seen = False  # If not found within timeout
        try:
            # Check if 'no_availability' is available within the given timeout
            WebDriverWait(self.browser_entity.driver, timeout).until(
                                    lambda driver: len(driver.find_elements(By.CSS_SELECTOR,
```

```
selectors['show_next_available_button'])) > 0
                )
                no_availability_seen = True  # If found, set the flag to True
            except:
                no_availability_seen = False  # If not found within timeout

            # Logic to determine availability
            if select_time_seen:
                return f"Selected or default date {date_str if date_str else 'current date'} is available for booking."
            elif no_availability_seen:
                return "No availability for the selected date."
            else:
                return "Unable to determine availability. Please try again."

        except Exception as e:
            return f"Failed to check availability: {str(e)}"



    def export_data(self, dto):
        """Export price data to both Excel and HTML using ExportUtils.

          dto: This is a Data Transfer Object (DTO) that contains the command, URL, result, date, and time.
        """
        # Extract the data from the DTO
        command = dto.get('command')
```

```
url = dto.get('url')
result = dto.get('result')
entered_date = dto.get('entered_date')  # Optional, could be None
entered_time = dto.get('entered_time')  # Optional, could be None

# Call the Excel export method from ExportUtils
excelResult = ExportUtils.log_to_excel(
    command=command,
    url=url,
    result=result,
    entered_date=entered_date,  # Pass the optional entered_date
    entered_time=entered_time   # Pass the optional entered_time
)
print(excelResult)

# Call the HTML export method from ExportUtils
htmlResult = ExportUtils.export_to_html(
    command=command,
    url=url,
    result=result,
    entered_date=entered_date,  # Pass the optional entered_date
    entered_time=entered_time   # Pass the optional entered_time
)
print(htmlResult)
```

```
--- BrowserEntity.py ---
import asyncio
from selenium.webdriver.common.by import By
from selenium.webdriver.support.ui import WebDriverWait
from selenium.webdriver.support import expected_conditions as EC
from selenium import webdriver
from selenium.webdriver.chrome.service import Service
from utils.css_selectors import Selectors



class BrowserEntity:
    _instance = None

    def __new__(cls, *args, **kwargs):
        if not cls._instance:
            cls._instance = super(BrowserEntity, cls).__new__(cls, *args, **kwargs)
        return cls._instance



    def __init__(self):
        self.driver = None
        self.browser_open = False



    def set_browser_open(self, is_open: bool):
        self.browser_open = is_open
```

```
def is_browser_open(self) -> bool:
    return self.browser_open



def launch_browser(self):
    if not self.browser_open:
        options = webdriver.ChromeOptions()
        options.add_argument("--remote-debugging-port=9222")
        options.add_experimental_option("excludeSwitches", ["enable-automation"])
        options.add_experimental_option('useAutomationExtension', False)
        options.add_argument("--start-maximized")
        options.add_argument("--disable-notifications")
        options.add_argument("--disable-popup-blocking")
        options.add_argument("--disable-infobars")
        options.add_argument("--disable-extensions")
        options.add_argument("--disable-webgl")
        options.add_argument("--disable-webrtc")
        options.add_argument("--disable-rtc-smoothing")


        self.driver = webdriver.Chrome(service=Service(), options=options)
        self.browser_open = True
        result = "Browser launched."
        print(result)
        return result
    else:
        result = "Browser is already running."
```

```
        print(result)
        return result


def close_browser(self):
    if self.browser_open and self.driver:
        self.driver.quit()
        self.browser_open = False
        result = "Browser closed."
        print(result)
        return result
    else:
        result = "No browser is currently open."
        print(result)
        return result


def navigate_to_website(self, url):
        # Ensure the browser is launched before navigating
        if not self.is_browser_open():
            self.launch_browser()

        # Navigate to the URL if browser is open
        if self.driver:
            self.driver.get(url)
            result = f"Navigated to {url}"
            print(result)
```

```
            return result
        else:
            result = "Failed to open browser."
            print(result)
            return result


    async def login(self, url, username, password):
        # Navigate to the website
        self.navigate_to_website(url)
        await asyncio.sleep(3)

        # Enter the username
        email_field = self.driver.find_element(By.CSS_SELECTOR, Selectors.get_selectors_for_url(url)['email_field'])
        email_field.send_keys(username)
        await asyncio.sleep(3)

        # Enter the password
        password_field = self.driver.find_element(By.CSS_SELECTOR, Selectors.get_selectors_for_url(url)['password_field'])
        password_field.send_keys(password)
        await asyncio.sleep(3)

        # Click the login button
        sign_in_button = self.driver.find_element(By.CSS_SELECTOR, Selectors.get_selectors_for_url(url)['SignIn_button'])
```

```
        sign_in_button.click()
        await asyncio.sleep(5)

        # Wait for the homepage to load
        try:
                                                                WebDriverWait(self.driver,
30).until(EC.presence_of_element_located((By.CSS_SELECTOR,
Selectors.get_selectors_for_url(url)['homePage'])))

            result = f"Logged in to {url} successfully with username: {username}"
            print(result)
            return result
        except Exception as e:
            result = f"Failed to log in: {str(e)}"
            print(result)
            return result
```

--- PriceEntity.py ---

```
from selenium.webdriver.common.by import By
from entity.BrowserEntity import BrowserEntity
from utils.exportUtils import ExportUtils  # Import ExportUtils for handling data export
from utils.css_selectors import Selectors  # Import selectors to get CSS selectors for the browser

class PriceEntity:
    """PriceEntity is responsible for interacting with the system (browser) to fetch prices
```

```
    and handle the exporting of data to Excel and HTML."""

    def __init__(self):
        self.browser_entity = BrowserEntity()

    def get_price_from_page(self, url: str):
        # Navigate to the URL using BrowserEntity
        self.browser_entity.navigate_to_website(url)
        selectors = Selectors.get_selectors_for_url(url)
        try:
            # Find the price element on the page using the selector
                        price_element = self.browser_entity.driver.find_element(By.CSS_SELECTOR,
selectors['price'])
            result = price_element.text
            return result
        except Exception as e:
            return f"Error fetching price: {str(e)}"


    def export_data(self, dto):
        """Export price data to both Excel and HTML using ExportUtils.

          dto: This is a Data Transfer Object (DTO) that contains the command, URL, result, date, and
time.
        """
        # Extract the data from the DTO
        command = dto.get('command')
```

```
    url = dto.get('url')
    result = dto.get('result')
    entered_date = dto.get('entered_date')  # Optional, could be None
    entered_time = dto.get('entered_time')  # Optional, could be None

    # Call the Excel export method from ExportUtils
    excelResult = ExportUtils.log_to_excel(
        command=command,
        url=url,
        result=result,
        entered_date=entered_date,  # Pass the optional entered_date
        entered_time=entered_time   # Pass the optional entered_time
    )
    print(excelResult)

    # Call the HTML export method from ExportUtils
    htmlResult = ExportUtils.export_to_html(
        command=command,
        url=url,
        result=result,
        entered_date=entered_date,  # Pass the optional entered_date
        entered_time=entered_time   # Pass the optional entered_time
    )
    print(htmlResult)
```

--- __init__.py ---

```
#empty init file


--- test_!add_account.py ---
# File: test_!add_account.py
# Purpose: Unit tests for the !add_account command.

from unittest.mock import patch
import logging, unittest
from test_init import BaseTestSetup, CustomTextTestRunner  # Import the shared setup

"""
File: test_!add_account.py
Purpose: This file contains unit tests for the !add_account command in the Discord bot.
The tests validate both successful and error scenarios, ensuring the account is added successfully or errors are handled properly.
Tests:
- Positive: Simulates the !add_account command and verifies the account is added correctly.
- Negative: Simulates an error while adding the account.
"""

class TestAddAccountCommand(BaseTestSetup):

    @patch('DataObjects.AccountDAO.AccountDAO.add_account')
    async def test_add_account_success(self, mock_add_account):
        """Test the add_account command when it succeeds."""
        logging.info("Starting test: test_add_account_success")
```

```
        # Mock the DAO method to simulate successful account addition
        mock_add_account.return_value = True

        command = self.bot.get_command("add_account")
        self.assertIsNotNone(command)
        await command(self.ctx, "testuser", "password123", "example.com")

        expected_message = "Account for example.com added successfully."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful account addition.")

    @patch('DataObjects.AccountDAO.AccountDAO.add_account')
    async def test_add_account_error(self, mock_add_account):
        """Test the add_account command when it encounters an error."""
        logging.info("Starting test: test_add_account_error")

        # Mock the DAO method to simulate an error during account addition
        mock_add_account.return_value = False

        command = self.bot.get_command("add_account")
        await command(self.ctx, "testuser", "password123", "example.com")

        self.ctx.send.assert_called_with("Failed to add account for example.com.")
        logging.info("Verified error handling during account addition.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))
```

```
--- test_!check_availability.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!check_availability.py
Purpose: Unit tests for the !check_availability command in the Discord bot.
"""

class TestCheckAvailabilityCommand(BaseTestSetup):

    @patch('control.AvailabilityControl.AvailabilityControl.receive_command')
    async def test_check_availability_success(self, mock_receive_command):
        """Test the check_availability command when it succeeds."""
        logging.info("Starting test: test_check_availability_success")

        mock_receive_command.return_value = "Available for booking."

        command = self.bot.get_command("check_availability")
        self.assertIsNotNone(command)

        await command(self.ctx, "https://example.com", "2024-09-30")
        expected_message = "Available for booking."
        self.ctx.send.assert_called_with(expected_message)
```

```
        logging.info("Verified successful availability check.")

    @patch('control.AvailabilityControl.AvailabilityControl.receive_command')
    async def test_check_availability_error(self, mock_receive_command):
        """Test the check_availability command when it encounters an error."""
        logging.info("Starting test: test_check_availability_error")

        mock_receive_command.return_value = "No availability found."

        command = self.bot.get_command("check_availability")
        self.assertIsNotNone(command)

        await command(self.ctx, "https://invalid-url.com", "2024-09-30")
        expected_message = "No availability found."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified error handling during availability check.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))


--- test_!close_browser.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
```

File: test_!close_browser.py

Purpose: This file contains unit tests for the !close_browser command in the Discord bot.

The tests validate both successful and error scenarios, ensuring the browser closes properly or errors are handled gracefully.

Tests:

- Positive: Simulates the !close_browser command and verifies the browser closes correctly.

- Negative: Simulates an error during browser closure and ensures it is handled gracefully.

"""

```
class TestCloseBrowserCommand(BaseTestSetup):

    @patch('entity.BrowserEntity.BrowserEntity.close_browser')
    async def test_close_browser_success(self, mock_close_browser):
        """Test the close_browser command when it succeeds."""
        logging.info("Starting test: test_close_browser_success")

        # Simulate successful browser closure
        mock_close_browser.return_value = "Browser closed."

        # Retrieve the close_browser command from the bot
        command = self.bot.get_command("close_browser")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx)
```

```
        # Verify the expected message was sent to the user
        expected_message = "Browser closed."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful browser closure.")

    @patch('entity.BrowserEntity.BrowserEntity.close_browser')
    async def test_close_browser_error(self, mock_close_browser):
        """Test the close_browser command when it encounters an error."""
        logging.info("Starting test: test_close_browser_error")

        # Simulate a failure during browser closure
        mock_close_browser.side_effect = Exception("Failed to close browser")

        # Retrieve the close_browser command from the bot
        command = self.bot.get_command("close_browser")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx)

        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Failed to close browser")  # Error message handled
        logging.info("Verified error handling during browser closure.")


if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
```

```
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!delete_account.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!delete_account.py
Purpose: This file contains unit tests for the !delete_account command in the Discord bot.
The tests validate both successful and error scenarios, ensuring the bot deletes the account properly or handles errors.
Tests:
- Positive: Simulates the !delete_account command and verifies the account is deleted successfully.
- Negative: Simulates an error during account deletion and ensures it is handled gracefully.
"""

class TestDeleteAccountCommand(BaseTestSetup):

    @patch('DataObjects.AccountDAO.AccountDAO.delete_account')
    async def test_delete_account_success(self, mock_delete_account):
        """Test the delete_account command when it succeeds."""
        logging.info("Starting test: test_delete_account_success")
        mock_delete_account.return_value = True  # Simulate successful deletion

        command = self.bot.get_command("delete_account")
```

```
        self.assertIsNotNone(command)

        await command(self.ctx, '123')  # Simulate passing account ID '123'

        expected_message = "Account with ID 123 deleted successfully."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful account deletion.")

    @patch('DataObjects.AccountDAO.AccountDAO.delete_account')
    async def test_delete_account_error(self, mock_delete_account):
        """Test the delete_account command when it encounters an error."""
        logging.info("Starting test: test_delete_account_error")
        mock_delete_account.return_value = False  # Simulate failure in deletion

        command = self.bot.get_command("delete_account")
        self.assertIsNotNone(command)

        await command(self.ctx, '999')  # Simulate passing a non-existent account ID '999'

        expected_message = "Failed to delete account with ID 999."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified error handling during account deletion.")

if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))
```

```
--- test_!fetch_account_by_website.py ---
import unittest, logging
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

class TestFetchAccountByWebsiteCommand(BaseTestSetup):

    @patch('DataObjects.AccountDAO.AccountDAO.fetch_account_by_website')
    async def test_fetch_account_by_website_success(self, mock_fetch_account_by_website):
        """Test the fetch_account_by_website command when it succeeds."""
        logging.info("Starting test: test_fetch_account_by_website_success")
        mock_fetch_account_by_website.return_value = ('testuser', 'password123')

        command = self.bot.get_command("fetch_account_by_website")
        self.assertIsNotNone(command)

        await command(self.ctx, 'example.com')

        expected_message = 'testuser', 'password123'
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful account fetch.")

    @patch('DataObjects.AccountDAO.AccountDAO.fetch_account_by_website')
    async def test_fetch_account_by_website_error(self, mock_fetch_account_by_website):
        """Test the fetch_account_by_website command when it encounters an error."""
        logging.info("Starting test: test_fetch_account_by_website_error")
```

```
        mock_fetch_account_by_website.return_value = None

        command = self.bot.get_command("fetch_account_by_website")
        self.assertIsNotNone(command)

        await command(self.ctx, 'nonexistent.com')

        expected_message = 'No account found for nonexistent.com.'
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified error handling for nonexistent account.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!fetch_all_accounts.py ---
# File: test_!fetch_all_accounts.py
# Purpose: Unit tests for the !fetch_all_accounts command.
from unittest.mock import patch
import logging, unittest
from test_init import BaseTestSetup, CustomTextTestRunner

class TestFetchAllAccountsCommand(BaseTestSetup):
    @patch('DataObjects.AccountDAO.AccountDAO.fetch_all_accounts')
    async def test_fetch_all_accounts_success(self, mock_fetch_all_accounts):
        """Test the fetch_all_accounts command when it succeeds."""
        logging.info("Starting test: test_fetch_all_accounts_success")
```

```
        mock_fetch_all_accounts.return_value = [("1", "testuser", "password", "example.com")]

        command = self.bot.get_command("fetch_all_accounts")
        self.assertIsNotNone(command)
        await command(self.ctx)

        # Correct the expected message
          expected_message = "Accounts:\nID: 1, Username: testuser, Password: password, Website:
example.com"
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful fetch.")


    @patch('DataObjects.AccountDAO.AccountDAO.fetch_all_accounts')  # Correct path
    async def test_fetch_all_accounts_error(self, mock_fetch_all_accounts):
        """Test the fetch_all_accounts command when it encounters an error."""
        logging.info("Starting test: test_fetch_all_accounts_error")

        # Simulate an error
        mock_fetch_all_accounts.side_effect = Exception("Database error")

        command = self.bot.get_command("fetch_all_accounts")
        await command(self.ctx)

        # Verify that the correct error message is sent
        self.ctx.send.assert_called_with("Error fetching accounts.")
```

```
        logging.info("Verified error handling.")



if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!get_price.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!get_price.py
Purpose: This file contains unit tests for the !get_price command in the Discord bot.
The tests validate both successful and error scenarios, ensuring that the price is fetched correctly or
errors are handled.
"""

class TestGetPriceCommand(BaseTestSetup):
    @patch('control.PriceControl.PriceControl.receive_command')
    async def test_get_price_success(self, mock_receive_command):
        """Test the get_price command when it succeeds."""
        logging.info("Starting test: test_get_price_success")

        # Simulate successful price fetch
        mock_receive_command.return_value = "Price: $199.99"
```

```
    # Retrieve the get_price command from the bot
    command = self.bot.get_command("get_price")
    self.assertIsNotNone(command)

    # Call the command with a valid URL
    await command(self.ctx, "https://example.com")

    # Verify the expected message was sent to the user
    expected_message = "Price: $199.99"
    self.ctx.send.assert_called_with(expected_message)
    logging.info("Verified successful price fetch.")

@patch('control.PriceControl.PriceControl.receive_command')
async def test_get_price_error(self, mock_receive_command):
    """Test the get_price command when it encounters an error."""
    logging.info("Starting test: test_get_price_error")

    # Simulate a failure during price fetch
    mock_receive_command.return_value = "Failed to fetch price"

    # Retrieve the get_price command from the bot
    command = self.bot.get_command("get_price")
    self.assertIsNotNone(command)

    # Call the command with an invalid URL
    await command(self.ctx, "https://invalid-url.com")
```

```
        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Failed to fetch price")
        logging.info("Verified error handling during price fetch.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!launch_browser.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!launch_browser.py
Purpose: This file contains unit tests for the !launch_browser command in the Discord bot.
The tests validate both successful and error scenarios, ensuring the browser launches properly or errors are handled gracefully.

Tests:
- Positive: Simulates the !launch_browser command and verifies the browser launches correctly.
- Negative: Simulates an error during browser launch and ensures it is handled gracefully.
"""

class TestLaunchBrowserCommand(BaseTestSetup):
```

```
@patch('entity.BrowserEntity.BrowserEntity.launch_browser')
async def test_launch_browser_success(self, mock_launch_browser):
    """Test the launch_browser command when it succeeds."""
    logging.info("Starting test: test_launch_browser_success")

    # Simulate successful browser launch
    mock_launch_browser.return_value = "Browser launched."

    # Retrieve the launch_browser command from the bot
    command = self.bot.get_command("launch_browser")
    self.assertIsNotNone(command)

    # Call the command
    await command(self.ctx)

    # Verify the expected message was sent to the user
    expected_message = "Browser launched."
    self.ctx.send.assert_called_with(expected_message)
    logging.info("Verified successful browser launch.")

@patch('entity.BrowserEntity.BrowserEntity.launch_browser')
async def test_launch_browser_error(self, mock_launch_browser):
    """Test the launch_browser command when it encounters an error."""
    logging.info("Starting test: test_launch_browser_error")

    # Simulate a failure during browser launch
    mock_launch_browser.side_effect = Exception("Failed to launch browser")
```

```
        # Retrieve the launch_browser command from the bot
        command = self.bot.get_command("launch_browser")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx)

        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Failed to launch browser")  # Error message handled
        logging.info("Verified error handling during browser launch.")


if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))


--- test_!login.py ---
import logging, unittest
from unittest.mock import patch, AsyncMock
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!login.py
Purpose: Unit tests for the !login command in the Discord bot.
The tests validate both successful and error scenarios, ensuring the bot correctly logs in to a
```

specified website or handles errors gracefully.

Tests:

- Positive: Simulates the !login command and verifies the login is successful.

- Negative: Simulates an error during login and ensures it is handled gracefully.

"""

```
class TestLoginCommand(BaseTestSetup):

    @patch('control.LoginControl.LoginControl.receive_command')
    async def test_login_success(self, mock_receive_command):
        """Test the login command when it succeeds."""
        logging.info("Starting test: test_login_success")

        # Simulate a successful login
        mock_receive_command.return_value = "Login successful."

        # Retrieve the login command from the bot
        command = self.bot.get_command("login")
        self.assertIsNotNone(command)

        # Call the command with a valid site (e.g., ebay)
        await command(self.ctx, "ebay")

        # Verify the expected message was sent to the user
        expected_message = "Login successful."
        self.ctx.send.assert_called_with(expected_message)
```

```
        logging.info("Verified successful login.")

    @patch('control.LoginControl.LoginControl.receive_command')
    async def test_login_error(self, mock_receive_command):
        """Test the login command when it encounters an error."""
        logging.info("Starting test: test_login_error")

        # Simulate a failure during login
        mock_receive_command.return_value = "Failed to login. No account found."

        # Retrieve the login command from the bot
        command = self.bot.get_command("login")
        self.assertIsNotNone(command)

        # Call the command with a non-existent site (e.g., nonexistent.com)
        await command(self.ctx, "nonexistent.com")

        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Failed to login. No account found.")
        logging.info("Verified error handling during login.")

if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!monitor_availability.py ---
```

```
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!monitor_availability.py
Purpose: Unit tests for the !monitor_availability command in the Discord bot.
"""

class TestMonitorAvailabilityCommand(BaseTestSetup):

    @patch('control.AvailabilityControl.AvailabilityControl.receive_command')
    async def test_monitor_availability_success(self, mock_receive_command):
        """Test the monitor_availability command when it succeeds."""
        logging.info("Starting test: test_monitor_availability_success")

        mock_receive_command.return_value = "Monitoring started for https://example.com."

        command = self.bot.get_command("start_monitoring_availability")
        self.assertIsNotNone(command)

        await command(self.ctx, "https://example.com", "2024-09-30", 15)
        expected_message = "Monitoring started for https://example.com."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful availability monitoring start.")

    @patch('control.AvailabilityControl.AvailabilityControl.receive_command')
```

```
    async def test_monitor_availability_error(self, mock_receive_command):
        """Test the monitor_availability command when it encounters an error."""
        logging.info("Starting test: test_monitor_availability_error")

        mock_receive_command.return_value = "Failed to start monitoring."

        command = self.bot.get_command("start_monitoring_availability")
        self.assertIsNotNone(command)

        await command(self.ctx, "https://invalid-url.com", "2024-09-30", 15)
        expected_message = "Failed to start monitoring."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified error handling during availability monitoring.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!navigate_to_website.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!navigate_to_website.py
Purpose: This file contains unit tests for the !navigate_to_website command in the Discord bot.
The tests validate both successful and error scenarios, ensuring the bot navigates to the website
```

```
correctly or handles errors.
"""

class TestNavigateToWebsiteCommand(BaseTestSetup):

    @patch('entity.BrowserEntity.BrowserEntity.navigate_to_website')
    async def test_navigate_to_website_success(self, mock_navigate_to_website):
        """Test the navigate_to_website command when it succeeds."""
        logging.info("Starting test: test_navigate_to_website_success")

        # Simulate successful navigation
        mock_navigate_to_website.return_value = "Navigated to https://example.com."

        # Retrieve the navigate_to_website command from the bot
        command = self.bot.get_command("navigate_to_website")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx, "https://example.com")

        # Verify the expected message was sent to the user
        expected_message = "Navigated to https://example.com."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful website navigation.")

    @patch('entity.BrowserEntity.BrowserEntity.navigate_to_website')
    async def test_navigate_to_website_error(self, mock_navigate_to_website):
```

```
        """Test the navigate_to_website command when it encounters an error."""
        logging.info("Starting test: test_navigate_to_website_error")

        # Simulate a failure during navigation
        mock_navigate_to_website.side_effect = Exception("Failed to navigate to the website.")

        # Retrieve the navigate_to_website command from the bot
        command = self.bot.get_command("navigate_to_website")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx, "https://invalid-url.com")

        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Failed to navigate to the website.")  # Error message handled
        logging.info("Verified error handling during website navigation.")

if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!project_help.py ---
import logging, unittest
from test_init import BaseTestSetup, CustomTextTestRunner
from unittest.mock import call
"""
```

File: test_!project_help.py

Purpose: This file contains unit tests for the !project_help command in the Discord bot.

The tests validate both successful and error scenarios, ensuring the bot provides the correct help message and handles errors properly.

Tests:

- Positive: Simulates the !project_help command and verifies the correct help message is sent.

- Negative: Simulates an error scenario and ensures the error is handled gracefully.

"""

```
class TestStopBotCommand(BaseTestSetup):

    async def test_project_help_success(self):
        """Test the project help command when it successfully returns the help message."""
        logging.info("Starting test: test_project_help_success")

        # Simulate calling the project_help command
        logging.info("Simulating the project_help command call.")
        command = self.bot.get_command("project_help")
            self.assertIsNotNone(command, "project_help command is not registered.")  # Ensure the command is registered
        await command(self.ctx)

        # Check both the control message and help message were sent
        expected_calls = [
            call('Command recognized, passing data to control.'),  # First message sent by the bot
            call(help_message)  # Second message: the actual help message
        ]
```

```
        self.ctx.send.assert_has_calls(expected_calls, any_order=False)  # Ensure the messages are sent in the correct order
        logging.info("Verified that both the control and help messages were sent.")



    async def test_project_help_error(self):
        """Test the project help command when it encounters an error during execution."""
        logging.info("Starting test: test_project_help_error")

        # Simulate calling the project_help command and an error occurring
        logging.info("Simulating the project_help command call.")
            self.ctx.send.side_effect = Exception("Error during project_help execution.")  # Simulate an error

        command = self.bot.get_command("project_help")
            self.assertIsNotNone(command, "project_help command is not registered.")  # Ensure the command is registered

        # Act & Assert: Expect the exception to be raised
        with self.assertRaises(Exception):
            await command(self.ctx)

        logging.info("Verified that an error occurred and was handled.")

# Expected help message
help_message = (
                "Here are the available commands:\n"
```

```
            "!project_help - Get help on available commands.\n"
            "!fetch_all_accounts - Fetch all stored accounts.\n"
            "!add_account 'username' 'password' 'website' - Add a new account to the database.\n"
            "!fetch_account_by_website 'website' - Fetch account details by website.\n"
            "!delete_account 'account_id' - Delete an account by its ID.\n"
            "!launch_browser - Launch the browser.\n"
            "!close_browser - Close the browser.\n"
            "!navigate_to_website 'url' - Navigate to a specified website.\n"
            "!login 'website' - Log in to a website (e.g., !login bestbuy).\n"
            "!get_price 'url' - Check the price of a product on a specified website.\n"
              "!start_monitoring_price 'url' 'frequency' - Start monitoring a product's price at a specific interval (frequency in minutes).\n"
            "!stop_monitoring_price - Stop monitoring the product's price.\n"
            "!check_availability 'url' - Check availability for a restaurant or service.\n"
            "!start_monitoring_availability 'url' 'frequency' - Monitor availability at a specific interval.\n"
            "!stop_monitoring_availability - Stop monitoring availability.\n"
            "!stop_bot - Stop the bot.\n"
        )

if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))
```

--- test_!start_monitoring_price.py ---

```
import logging, unittest
from unittest.mock import patch
```

```
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!start_monitoring_price.py
Purpose: This file contains unit tests for the !start_monitoring_price command in the Discord bot.
The tests validate both successful and error scenarios, ensuring that the bot starts monitoring prices
or handles errors.
"""

class TestStartMonitoringPriceCommand(BaseTestSetup):
    @patch('control.PriceControl.PriceControl.receive_command')
    async def test_start_monitoring_price_success(self, mock_receive_command):
        """Test the start_monitoring_price command when it succeeds."""
        logging.info("Starting test: test_start_monitoring_price_success")

        # Simulate successful price monitoring start
        mock_receive_command.return_value = "Monitoring started for https://example.com."

        # Retrieve the start_monitoring_price command from the bot
        command = self.bot.get_command("start_monitoring_price")
        self.assertIsNotNone(command)

        # Call the command with a valid URL and frequency
        await command(self.ctx, "https://example.com", 20)

        # Verify the expected message was sent to the user
        expected_message = "Monitoring started for https://example.com."
```

```
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful price monitoring start.")

    @patch('control.PriceControl.PriceControl.receive_command')
    async def test_start_monitoring_price_error(self, mock_receive_command):
        """Test the start_monitoring_price command when it encounters an error."""
        logging.info("Starting test: test_start_monitoring_price_error")

        # Simulate a failure during price monitoring start
        mock_receive_command.return_value = "Failed to start monitoring"

        # Retrieve the start_monitoring_price command from the bot
        command = self.bot.get_command("start_monitoring_price")
        self.assertIsNotNone(command)

        # Call the command with an invalid URL
        await command(self.ctx, "https://invalid-url.com", 20)

        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Failed to start monitoring")
        logging.info("Verified error handling during price monitoring start.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!stop_bot.py ---
```

```
import logging, unittest
from unittest.mock import AsyncMock, call, patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!stop_bot.py
Purpose: This file contains unit tests for the !stop_bot command in the Discord bot.
The tests validate both successful and error scenarios, ensuring the bot correctly shuts down or handles errors during shutdown.
Tests:
- Positive: Simulates the !stop_bot command and verifies the bot shuts down correctly.
- Negative: Simulates an error during shutdown and ensures it is handled gracefully.
"""

class TestStopBotCommand(BaseTestSetup):

    async def test_stop_bot_success(self):
        """Test the stop bot command when it successfully shuts down."""
        logging.info("Starting test: test_stop_bot_success")

        # Patch the bot's close method on the ctx.bot (since bot is retrieved from ctx dynamically)
        with patch.object(self.ctx.bot, 'close', new_callable=AsyncMock) as mock_close:
            # Simulate calling the stop_bot command
            logging.info("Simulating the stop_bot command call.")
            command = self.bot.get_command("stop_bot")
                self.assertIsNotNone(command, "stop_bot command is not registered.")  # Ensure the command is registered
```

```
        await command(self.ctx)

        # Check if the correct messages were sent
        expected_calls = [
            call('Command recognized, passing data to control.'),  # First message sent by the bot
            call('The bot is shutting down...')  # Second message confirming the shutdown
        ]
            self.ctx.send.assert_has_calls(expected_calls, any_order=False)  # Ensure the messages are sent in the correct order
        logging.info("Verified that both expected messages were sent to the user.")

        # Check if bot.close() was called on the ctx.bot
        mock_close.assert_called_once()
        logging.info("Verified that the bot's close method was called once.")

    async def test_stop_bot_error(self):
        """Test the stop bot command when it encounters an error during shutdown."""
        logging.info("Starting test: test_stop_bot_error")

        # Patch the bot's close method to raise an exception
        with patch.object(self.ctx.bot, 'close', new_callable=AsyncMock) as mock_close:
            mock_close.side_effect = Exception("Error stopping bot")  # Simulate an error

            # Simulate calling the stop_bot command
            logging.info("Simulating the stop_bot command call.")
            command = self.bot.get_command("stop_bot")
                self.assertIsNotNone(command, "stop_bot command is not registered.")  # Ensure the
```

command is registered

```
        # Act & Assert: Expect the exception to be raised
        with self.assertRaises(Exception):
            await command(self.ctx)

        logging.info("Verified that an error occurred and was handled correctly.")

        # Ensure ctx.send was still called with the shutdown message before the error occurred
        self.ctx.send.assert_called_with("The bot is shutting down...")
        logging.info("Verified that 'The bot is shutting down...' message was sent despite the error.")

        # Verify that the close method was still attempted
        mock_close.assert_called_once()
        logging.info("Verified that the bot's close method was called even though it raised an error.")


if __name__ == "__main__":
    # Use the custom test runner to display 'Unit test passed'
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))
```

--- test_!stop_monitoring_availability.py ---

```
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner
```

"""

File: test_!stop_monitoring_availability.py

Purpose: Unit tests for the !stop_monitoring_availability command in the Discord bot.

"""

class TestStopMonitoringAvailabilityCommand(BaseTestSetup):

    @patch('control.AvailabilityControl.AvailabilityControl.receive_command')
    async def test_stop_monitoring_availability_no_active_session(self, mock_receive_command):
        """Test the stop_monitoring_availability command when no active session exists."""
        logging.info("Starting test: test_stop_monitoring_availability_no_active_session")

        mock_receive_command.return_value = "There was no active availability monitoring session."

        command = self.bot.get_command("stop_monitoring_availability")
        self.assertIsNotNone(command)

        await command(self.ctx)
        expected_message = "There was no active availability monitoring session."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified no active session stop scenario.")

    @patch('control.AvailabilityControl.AvailabilityControl.receive_command')
    async def test_stop_monitoring_availability_success(self, mock_receive_command):
        """Test the stop_monitoring_availability command when it succeeds."""
        logging.info("Starting test: test_stop_monitoring_availability_success")

```
        mock_receive_command.return_value = "Availability monitoring stopped successfully."

        command = self.bot.get_command("stop_monitoring_availability")
        self.assertIsNotNone(command)

        await command(self.ctx)
        expected_message = "Availability monitoring stopped successfully."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful availability monitoring stop.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_!stop_monitoring_price.py ---
import logging, unittest
from unittest.mock import patch
from test_init import BaseTestSetup, CustomTextTestRunner

"""
File: test_!stop_monitoring_price.py
Purpose: This file contains unit tests for the !stop_monitoring_price command in the Discord bot.
The tests validate both successful and error scenarios, ensuring that the bot stops monitoring prices
or handles errors.
"""

class TestStopMonitoringPriceCommand(BaseTestSetup):
```

```
    @patch('control.PriceControl.PriceControl.receive_command')
    async def test_stop_monitoring_price_no_active_session(self, mock_receive_command):
        """Test the stop_monitoring_price command when no active monitoring session exists."""
        logging.info("Starting test: test_stop_monitoring_price_no_active_session")

        # Simulate scenario with no active price monitoring session
            mock_receive_command.return_value = "There was no active price monitoring session. Nothing to stop."

        # Retrieve the stop_monitoring_price command from the bot
        command = self.bot.get_command("stop_monitoring_price")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx)

        # Verify the expected message was sent to the user
        expected_message = "There was no active price monitoring session. Nothing to stop."
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified no active session stop scenario.")

    @patch('control.PriceControl.PriceControl.receive_command')
    async def test_stop_monitoring_price_success_with_results(self, mock_receive_command):
            """Test the stop_monitoring_price command when monitoring was active and results are returned."""
        logging.info("Starting test: test_stop_monitoring_price_success_with_results")
```

```
        # Simulate stopping monitoring and receiving results
          mock_receive_command.return_value = "Results for price monitoring:\nPrice: $199.99\nPrice monitoring stopped successfully!"

        # Retrieve the stop_monitoring_price command from the bot
        command = self.bot.get_command("stop_monitoring_price")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx)

        # Verify the expected message was sent to the user
         expected_message = "Results for price monitoring:\nPrice: $199.99\nPrice monitoring stopped successfully!"
        self.ctx.send.assert_called_with(expected_message)
        logging.info("Verified successful stop with results.")

    @patch('control.PriceControl.PriceControl.receive_command')
    async def test_stop_monitoring_price_error(self, mock_receive_command):
        """Test the stop_monitoring_price command when it encounters an error."""
        logging.info("Starting test: test_stop_monitoring_price_error")

        # Simulate a failure during price monitoring stop
        mock_receive_command.return_value = "Error stopping price monitoring"

        # Retrieve the stop_monitoring_price command from the bot
```

```
        command = self.bot.get_command("stop_monitoring_price")
        self.assertIsNotNone(command)

        # Call the command
        await command(self.ctx)

        # Verify the correct error message is sent
        self.ctx.send.assert_called_with("Error stopping price monitoring")
        logging.info("Verified error handling during price monitoring stop.")

if __name__ == "__main__":
    unittest.main(testRunner=CustomTextTestRunner(verbosity=2))



--- test_init.py ---
# Purpose: This file contains common setup code for all test cases.
import sys, os, discord, logging, unittest
sys.path.append(os.path.dirname(os.path.dirname(os.path.abspath(__file__))))
from unittest.mock import AsyncMock
from utils.MyBot import MyBot

# Setup logging configuration
logging.basicConfig(level=logging.INFO, format='%(asctime)s - %(levelname)s - %(message)s')

class CustomTextTestResult(unittest.TextTestResult):
    """Custom test result to output 'Unit test passed' instead of 'ok'."""
    def addSuccess(self, test):
```

```
        super().addSuccess(test)
        self.stream.write("Unit test passed\n")  # Custom success message
        self.stream.flush()

class CustomTextTestRunner(unittest.TextTestRunner):
    """Custom test runner that uses the custom result class."""
    resultclass = CustomTextTestResult

class BaseTestSetup(unittest.IsolatedAsyncioTestCase):
    """Base setup class for initializing bot and mock context for all tests."""

    async def asyncSetUp(self):
        """Setup the bot and mock context before each test."""
        logging.info("Setting up the bot and mock context for testing...")
        intents = discord.Intents.default()
        intents.message_content = True
        self.bot = MyBot(command_prefix="!", intents=intents)
        self.ctx = AsyncMock()
        self.ctx.send = AsyncMock()
        self.ctx.bot = self.bot  # Mock the bot property in the context
        await self.bot.setup_hook()  # Ensure commands are registered
```

--- __init__.py ---

```
#empty init file
```

--- Config.py ---

```
class Config:
    DISCORD_TOKEN = 'MTI2OTM4MTE4OTA1NjMzNTk3Mw.Gihcfw.nrq0x-JiL65P0LIQTO-rTyyXq0qC-2PSSBuXr8'
    CHANNEL_ID = 1269383349278081054
    DATABASE_PASSWORD = 'postgres'


--- css_selectors.py ---
class Selectors:
    SELECTORS = {
        "google": {
            "url": "https://www.google.com/"
        },
        "ebay": {
            "url": "https://signin.ebay.com/signin/",
            "email_field": "#userid",
            "continue_button": "[data-testid*='signin-continue-btn']",
            "password_field": "#pass",
            "login_button": "#sgnBt",
            "price": ".x-price-primary span"  # CSS selector for Ebay price
        },
        "bestbuy": {
            "priceUrl": "https://www.bestbuy.com/site/microsoft-xbox-wireless-controller-for-xbox-series-x-xbox-series-s-xbox-one-windows-devices-sky-cipher-special-edition/6584960.p?skuId=6584960",
            "url": "https://www.bestbuy.com/signin/",
            "email_field": "#fld-e",
            #"continue_button": ".cia-form__controls  button",
```

```
            "password_field": "#fld-p1",
            "SignIn_button": ".cia-form__controls  button",
            "price": "[data-testid='customer-price'] span",  # CSS selector for BestBuy price
            "homePage": ".v-p-right-xxs.line-clamp"
        },
        "opentable": {
            "url": "https://www.opentable.com/",
            "unavailableUrl": "https://www.opentable.com/r/bar-spero-washington/",
            "availableUrl": "https://www.opentable.com/r/the-rux-nashville",
            "availableUrl2": "https://www.opentable.com/r/hals-the-steakhouse-nashville",
            "date_field": "#restProfileSideBarDtpDayPicker-label",
            "time_field": "#restProfileSideBartimePickerDtpPicker",
            "select_date": "#restProfileSideBarDtpDayPicker-wrapper", # button[aria-label*="{}"]
            "select_time": "h3[data-test='select-time-header']",
            "no_availability": "div._8ye6OVzeOuU- span",
            "find_table_button": ".find-table-button",  # Example selector for the Find Table button
            "availability_result": ".availability-result",  # Example selector for availability results
                "show_next_available_button": "button[data-test='multi-day-availability-button']",  # Show next available button
            "available_dates": "ul[data-test='time-slots'] > li",  # Available dates and times

        }
    }

    @staticmethod
    def get_selectors_for_url(url):
        for keyword, selectors in Selectors.SELECTORS.items():
```

```
            if keyword in url.lower():
                return selectors
        return None  # Return None if no matching selectors are found


--- exportUtils.py ---
import os
import pandas as pd
from datetime import datetime


class ExportUtils:


    @staticmethod
    def log_to_excel(command, url, result, entered_date=None, entered_time=None):
        # Determine the file path for the Excel file
        file_name = f"{command}.xlsx"
        file_path = os.path.join("ExportedFiles", "excelFiles", file_name)


        # Ensure directory exists
        os.makedirs(os.path.dirname(file_path), exist_ok=True)


        # Timestamp for current run
        timestamp = datetime.now().strftime('%Y-%m-%d %H:%M:%S')


        # If date/time not entered, use current timestamp
        entered_date = entered_date or datetime.now().strftime('%Y-%m-%d')
        entered_time = entered_time or datetime.now().strftime('%H:%M:%S')
```

```
        # Check if the file exists and create the structure if it doesn't
        if not os.path.exists(file_path):
            df = pd.DataFrame(columns=["Timestamp", "Command", "URL", "Result", "Entered Date",
"Entered Time"])
            df.to_excel(file_path, index=False)

        # Load existing data from the Excel file
        df = pd.read_excel(file_path)

        # Append the new row
        new_row = {
            "Timestamp": timestamp,
            "Command": command,
            "URL": url,
            "Result": result,
            "Entered Date": entered_date,
            "Entered Time": entered_time
        }

        # Add the new row to the existing data and save it back to Excel
        df = pd.concat([df, pd.DataFrame([new_row])], ignore_index=True)
        df.to_excel(file_path, index=False)

        return f"Data saved to Excel file at {file_path}."

    @staticmethod
    def export_to_html(command, url, result, entered_date=None, entered_time=None):
```

```
"""Export data to HTML format with the same structure as Excel."""

# Define file path for HTML
file_name = f"{command}.html"
file_path = os.path.join("ExportedFiles", "htmlFiles", file_name)

# Ensure directory exists
os.makedirs(os.path.dirname(file_path), exist_ok=True)

# Timestamp for current run
timestamp = datetime.now().strftime('%Y-%m-%d %H:%M:%S')

# If date/time not entered, use current timestamp
entered_date = entered_date or datetime.now().strftime('%Y-%m-%d')
entered_time = entered_time or datetime.now().strftime('%H:%M:%S')

# Data row to insert
new_row = {
    "Timestamp": timestamp,
    "Command": command,
    "URL": url,
    "Result": result,
    "Entered Date": entered_date,
    "Entered Time": entered_time
}

# Check if the HTML file exists and append rows
```

```
        if os.path.exists(file_path):
            # Open the file and append rows
            with open(file_path, "r+", encoding="utf-8") as file:
                content = file.read()
                # Look for the closing </table> tag and append new rows before it
                if "</table>" in content:
                    new_row_html = f"<tr><td>{new_row['Timestamp']}</td><td>{new_row['Command']}</td><td>{new_row['URL']}</td><td>{new_row['Result']}</td><td>{new_row['Entered Date']}</td><td>{new_row['Entered Time']}</td></tr>\n"
                    content = content.replace("</table>", new_row_html + "</table>")
                    file.seek(0)  # Move pointer to the start
                    file.write(content)
                    file.truncate()  # Truncate any remaining content
                    file.flush()  # Flush the buffer to ensure it's written
        else:
            # If the file doesn't exist, create a new one with table headers
            with open(file_path, "w", encoding="utf-8") as file:
                html_content = "<html><head><title>Command Data</title></head><body>"
                html_content += f"<h1>Results for {command}</h1><table border='1'>"
                html_content += "<tr><th>Timestamp</th><th>Command</th><th>URL</th><th>Result</th><th>Entered Date</th><th>Entered Time</th></tr>"
                html_content += f"<tr><td>{new_row['Timestamp']}</td><td>{new_row['Command']}</td><td>{new_row['URL']}</td><td>{new_row['Result']}</td><td>{new_row['Entered Date']}</td><td>{new_row['Entered Time']}</td></tr>\n"
```

```
            html_content += "</table></body></html>"
            file.write(html_content)
            file.flush()  # Ensure content is written to disk

        return f"HTML file saved and updated at {file_path}."


--- MyBot.py ---
import discord
from discord.ext import commands
from boundary.BrowserBoundary import BrowserBoundary
from boundary.NavigationBoundary import NavigationBoundary
from boundary.HelpBoundary import HelpBoundary
from boundary.StopBoundary import StopBoundary
from boundary.LoginBoundary import LoginBoundary
from boundary.AccountBoundary import AccountBoundary
from boundary.AvailabilityBoundary import AvailabilityBoundary
from boundary.PriceBoundary import PriceBoundary
from DataObjects.global_vars import GlobalState  # Import the global variable

# Bot initialization
intents = discord.Intents.default()
intents.message_content = True  # Enable reading message content

class MyBot(commands.Bot):

    def __init__(self, *args, **kwargs):
```

```
        super().__init__(*args, **kwargs)

    async def on_message(self, message):
        if message.author == self.user:  # Prevent the bot from replying to its own messages
            return

        print(f"Message received: {message.content}")
        GlobalState.user_message = message.content.lower()

        if GlobalState.user_message in ["hi", "hey", "hello"]:
            await message.channel.send("Hi, how can I help you?")

        elif GlobalState.user_message.startswith("!"):
            print("User_message starts with '!'")
            GlobalState.user_message = GlobalState.user_message.replace("!", "")
            print(f"User_message after replacing '!' with empty string: {GlobalState.user_message}")

        else:
              await message.channel.send("I'm sorry, I didn't understand that. Type !project_help to see the list of commands.")

        await self.process_commands(message)
        GlobalState.reset_user_message()  # Reset the global user_message variable
        print("User_message reset to empty string")

    async def setup_hook(self):
        await self.add_cog(BrowserBoundary())  # Add your boundary objects
```

```
        await self.add_cog(NavigationBoundary())
        await self.add_cog(HelpBoundary())
        await self.add_cog(StopBoundary())
        await self.add_cog(LoginBoundary())
        await self.add_cog(AccountBoundary())
        await self.add_cog(AvailabilityBoundary())
        await self.add_cog(PriceBoundary())

    async def on_ready(self):
        print(f"Logged in as {self.user}")
            channel = discord.utils.get(self.get_all_channels(), name="general")  # Adjust the channel name if needed
        if channel:
            await channel.send("Hi, I'm online! Type '!project_help' to see what I can do.")

    async def on_command_error(self, ctx, error):
        if isinstance(error, commands.CommandNotFound):
            print("Command not recognized:")
            print(error)
             await ctx.channel.send("I'm sorry, I didn't understand that. Type !project_help to see the list of commands.")

# Initialize the bot instance
bot = MyBot(command_prefix="!", intents=intents, case_insensitive=True)

def start_bot(token):
    """Run the bot with the provided token."""
```

```
bot.run(token)
```