Cyber Forensics and Laws- Mini Project

Name: Shubham Lad

Roll No. 502

Class: MSc Computer Science Part II

Aim: Python script that simulates a simple software piracy detection system.

1. Import the necessary module:

```
import random
```

We import the random module to generate random activation keys.

---

2. Define a list of valid activation keys:

```
valid_activation_keys = [ “AB12-CD34-EF56-GH78”, “JK90-LM12-OP34-QR56”, “ST78-UV90-WX12-YZ34”,]
```

This list contains example valid activation keys, representing legal copies of the software. In a real-world scenario, this list would be replaced with a database or another secure mechanism to store and validate activation keys.

---

3. Define two functions:

- `is_valid_activation_key(activation_key):` This function checks if a given activation key is valid by comparing it to the list of valid activation keys. If the provided key is in the list, it returns True, indicating a legal copy of the software.

- `generate_random_activation_key():` This function generates a random activation key in the format "XXXX-XXXX-XXXX-XXXX," where each X represents a random digit. This function is used for demonstration purposes to generate random keys.

---

4. Main program logic:

- The `if __name__ == "__main__":` block ensures that the following code is executed when the script is run.
- Inside the main loop, the user is presented with a menu to choose from three options:
  - Check Activation Key

    - Generate Random Activation Key
    - Exit
- The user's choice is read using the input() function.
- If the user chooses "1" (Check Activation Key):
    - The script prompts the user to enter an activation key.
    - It then calls the `is_valid_activation_key()` function to check if the entered key is valid.
    - It displays a message indicating whether the key is valid (legal copy) or not (potentially pirated copy).
- If the user chooses "2" (Generate Random Activation Key):
    - The script calls the `generate_random_activation_key()` function to generate a random activation key.
    - It displays the generated key to the user.
- If the user chooses "3" (Exit), the script exits the loop and terminates.
- If the user enters an invalid choice, it displays a message indicating that the choice is invalid.

This code provides a basic demonstration of a software piracy detection system, allowing users to check activation keys and generate random keys. In a real-world scenario, you would implement a more robust and secure method for managing and validating activation keys.

Code:

```
import random

# Define a list of valid activation keys (representing legal copies of the
software)
valid_activation_keys = [
    "AB12-CD34-EF56-GH78",
    "JK90-LM12-OP34-QR56",
    "ST78-UV90-WX12-YZ34",
]

def is_valid_activation_key(activation_key):
    return activation_key in valid_activation_keys

def generate_random_activation_key():
    # Generate a random activation key in the format XXXX-XXXX-XXXX-XXXX
    key_parts = [f"{random.randint(0, 9999):04}" for _ in range(4)]
    return "-".join(key_parts)

if __name__ == "__main__":
```

```
    while True:
        print("Software Piracy Detection System")
        print("1. Check Activation Key")
        print("2. Generate Random Activation Key")
        print("3. Exit")

        choice = input("Enter your choice: ")

        if choice == "1":
            activation_key = input("Enter the activation key to check: ")
            if is_valid_activation_key(activation_key):
                print("Activation key is valid. This is a legal copy of the
software.")
            else:
                print("Activation key is not valid. This may be a pirated copy
of the software.")
        elif choice == "2":
            random_key = generate_random_activation_key()
            print(f"Generated random activation key: {random_key}")
        elif choice == "3":
            print("Exiting...")
            break
        else:
            print("Invalid choice. Please choose a valid option.")
```

Output:

```
Software Piracy Detection System
1. Check Activation Key
2. Generate Random Activation Key
3. Exit
Enter your choice: 1
Enter the activation key to check: ST78-UV90-WX12-YZ34
Activation key is valid. This is a legal copy of the software.
```

```
Software Piracy Detection System
1. Check Activation Key
2. Generate Random Activation Key
3. Exit
Enter your choice: 2
Generated random activation key: 9664-8956-9790-9115
```

```
Software Piracy Detection System
1. Check Activation Key
2. Generate Random Activation Key
3. Exit
Enter your choice: 9664-8956-9790-9115
Invalid choice. Please choose a valid option.
Software Piracy Detection System
1. Check Activation Key
2. Generate Random Activation Key
3. Exit
```