Assignment: Sets & Dictionaries in Python

Part 1: Sets

1. **Create a Set**
   - Create a set of five of your favorite fruits. Add one more fruit to the set. Print the final set.
2. **Find Unique Participants**
   - Given two lists:

```
group1 = ["Alice", "Bob", "Charlie"]
group2 = ["Alice", "David", "Eve"]
```

     - Combine the two lists and create a set to get unique participants. Print the result.
     - Iterate through the set and print each name.
3. **Hobbies Comparison**
   - Given:

```
a_hobbies = {"reading", "writing", "coding"}
b_hobbies = {"writing", "gaming", "drawing"}
```

     - Print:
       - Common hobbies
       - Hobbies only A has
       - Hobbies only B has
       - All unique hobbies
       - Hobbies that only one of them has (symmetric difference)
4. **Interactive Set Input**
   - Write a program that:
     - Asks the user to keep entering their hobbies (until they type `"exit"`).
     - Then allows them to remove hobbies one at a time.
     - If a hobby doesn't exist, display an error message.
5. **Predict the Output**
   What will the following code print?

```
s = {1, 2, 3, 2, 4, 1}
s.add(5)
s.remove(2)
print(s)
```

Part 2: Dictionaries

6. **Create a Student Dictionary**
   - Create a dictionary with the following keys and values:
     - name, age, address, phone, hobbies (as a list)
   - Print the keys, values, and items of the dictionary.
7. **Check for Keys**
   - Check if `"bike"` exists in the dictionary. If it doesn't, add it with value `"Honda"`.
8. **Update and Delete**
   - Update the student's age to a new value.
   - Add a new key `"email"` with some value.
   - Delete the `"phone"` key.
   - Print the updated dictionary.
9. **Nested Dictionary Access**
   Given the following dictionary:

```
student = {
    "name": "Sita",
    "college": {
        "name": "XYZ College",
        "location": "Pokhara",
        "department": {
            "head": "Dr. Ram",
            "assistant": "Dr. Hari"
        }
    }
}
```

   - Access and print:

- Student name
- College name
- Department head

10. **Iterate Over Dictionary**

    - Write a program that prints all key-value pairs using a loop like:

```
for key, value in your_dict.items():
    print(key, "->", value)
```

Bonus Challenge

11. **Build Your Own Address Book**

- Create a program that:

    - Lets the user enter multiple contacts (name, phone).
    - Stores them in a dictionary.
    - Allows the user to search for a name and view the phone number.
    - Exit on input `"stop"` .
