🐍 Python Recap Notebook

Session-wise Questions + Code Spaces with Solutions

⌄ Session 1: Getting Started with Python

Recap Questions

1. What is Python and why was it created?
2. List at least 3 features of Python.
3. **Write a program that prints your name and age.**
4. **Solve: Print the result of `10 + 5`.**

```
# Solution for Session 1
print("Hello, my name is Jay and I am 22 years old.")
print("10 + 5 =", 10 + 5)
```

⌄ Session 2: Variables, Data Types & Typecasting

Recap Questions

1. What are variables in Python?
2. Explain with example: int, float, string.
3. **Show implicit type conversion with `5 + 2.5`.**
4. **Convert a string "100" into integer.**
5. **Take user input (name & age) and print a greeting.**

```
# Solution for Session 2
name = "Rahul"
age = 21
height = 5.8
print(name, age, height)

# Implicit conversion
print(5 + 2.5)  # float result

# Explicit conversion
num_str = "100"
num_int = int(num_str)
print(num_int, type(num_int))
```

⌄ Input and Output Example

user_name = input("Enter your name: ")

user_age = int(input("Enter your age: "))

print(f"Hello {user_name}, you are {user_age} years old.")

⌄ Session 3: Conditionals in Python

Recap Questions

1. What are conditionals and why do we use them?
2. **Write a program to check if a number is positive, negative, or zero.**
3. **Create a fruit chatbot using if-elif-else.**
4. **Make a word guessing game.**

```python
# Solution for Session 3
# Number checker
num = 5
if num > 0:
    print("Positive")
elif num < 0:
    print("Negative")
else:
    print("Zero")

# Fruit chatbot
fruits = ["apple", "banana", "mango", "orange"]
order = "mango"
if order == "apple":
    print("Apples cost ₹100 per kg")
elif order == "banana":
    print("Bananas cost ₹40 per dozen")
elif order == "mango":
    print("Mangoes cost ₹150 per kg")
elif order == "orange":
    print("Oranges cost ₹80 per kg")
else:
    print("Sorry, we don't have that fruit")

# Word guessing game
secret_word = "python"
guess = "java"
if guess == secret_word:
    print("🎉 Correct! You guessed the word.")
elif guess in ["java", "c++", "ruby"]:
    print("Close, but not the secret word. Try again!")
else:
    print("Nope, better luck next time!")
```

Session 4: Lists & Tuples

Recap Questions

1. Define a list. What are its properties?
2. **Demonstrate list indexing & slicing.**
3. **Perform concatenation and repetition of lists.**
4. **Show at least 3 list methods (append, sort, remove).**
5. **What is a tuple and how is it different from a list?**
6. **Create a list comprehension that stores squares of even numbers.**

```python
# Solution for Session 4
my_list = [1, 2, 3, 4, 5]
print(my_list[0], my_list[-1])
print(my_list[1:4])

# List arithmetic
list1 = [1, 2, 3]
list2 = [4, 5, 6]
print(list1 + list2)
print(list1 * 2)

# List methods
numbers = [5, 2, 9, 1, 7]
numbers.append(10)
numbers.sort()
print(numbers)
numbers.remove(2)
print(numbers)

# Tuples
my_tuple = (10, 20, 30, 20)
print(my_tuple)

# List comprehension
numbers = [1,2,3,4,5,6,7,8,9,10]
squares = [x**2 for x in numbers if x % 2 == 0]
print(squares)
```

Session 5: Loops & List Methods

Recap Questions

1. Explain the difference between for and while loops.
2. **Write a for loop to print even numbers from 1–20.**
3. **Write a while loop that keeps asking for input until user types "stop".**
4. **Use a loop with append() to store squares of numbers in a list.**
5. **Use pop() in a loop to empty a list.**

```
# For loop (even numbers)
for i in range(1, 21):
    if i % 2 == 0:
        print(i, end=" ")
print()
```

While loop (input until stop)

Uncomment in Colab to test interactively

user_input = ""

while user_input.lower() != "stop":

user_input = input("Type something (or 'stop' to end): ")

```
# Append squares
nums = [1, 2, 3, 4, 5]
squares = []
for n in nums:
    squares.append(n**2)
print(squares)

# Pop elements
while squares:
    print("Popped:", squares.pop())
```

Session 6: Practice Question Solutions

Recap Questions

1. Solve at least one HackerRank/LeetCode problem you practiced.
2. Debug a code snippet with an error.
3. Write a program using loops and conditionals together.

Ques: Find sum of even numbers from 1 to 10

```
sum_even = 0
for i in range(1, 11):
    if i % 2 == 0:
        sum_even += i
print("Sum of even numbers from 1 to 10:", sum_even)
```