1.What is a variable in Python, and how do you create one?

variable is container , it is used to store data/values/literals

```
branch_name = "Mechanical"
```

2.Is it necessary to specify a data type while creating a variable in Python? Why?

- No, it is not necessary to specify a data type while creating a variable in python
- python is a dynamic language, it can specified data type automatically

```
3.How does Python determine the data type of a variable, and can it change late

Object `later` not found.
```

- python automatically determines the data type of a variable
- yes we can change it latter
- example : - now x = 5 ---- then x = "helo"

4.What is variable reassignment, and what happens when a variable is reassigned to a different data type?

- reassignment variable means "changing the value of the variable after it create"
- old values of variables should be change(gone)to new one is update
- example x = 10 print (x) = 10 , x = 10 x = 20 print (x) = 20

5.How can you assign multiple values to multiple variables in a single line?

- by using commas
- using commas to unpack multiple values into variables in one line
- example = a,b,c = 1, 2, "hi"
- two ways to do it -
- diferent values = x,y,z = "apple" , "banana" , 1 *same values = x=y=z = 10 --- all gets 10

6.Are variable names in Python case-sensitive? Explain with an example.

- yes, variable names in python are case-sensitive
- age = 24 ---- print(age)
- Age = 24 ---- print(Age)
- AGE = 24 ---- print(AGE)

7.What is an identifier in Python, and what rules must be followed while naming identifiers?

- identifier is used to identify "functions,values & method" *rules ⏩ 1.Identifiers start with letters(A - Z, a - z) or underscore(_), never start with numbers(0-9) 2.Identifiers include letters,numbers (0-9) as underscore only, not with special charecters like @,#,$ 3.case-sensitive 4.connot be a python keyword like if,for,class

8.Can an identifier start with a number or contain special characters? Why?

- No, identifier cannot start with numbers or special characters
- must start with letters
- only letters, digits nad underscore, special characters are not allowed

9.Are Python keywords allowed to be used as identifiers? Explain the reason.

- No, python keywords are not allowed to be used as identifiers
- keywords like if,for,while,etc... are reserved for python syntx and control structure *RESONS **bold text** 1.Using them as variable names causes a "syntx error"--python needs them for its own special commands 2.identifiers (variables/function names) must be unique keywords aviod confusions during code execution

10.Why is it important to use meaningful variable names and follow naming conventions in Python?

*meaningful variables names make code easy to read and understand

- **convention** 1.improve team work 2.easier debugging & maintance

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