

What are the key constructs required to create a loop? X

Identify two scenarios that may require two different types of loops. X

Be sure to provide specific details for each scenario that illustrate why the different types of loops are required. X

Include a brief pseudocode example to share that includes at least one loop. X

Hello,

A loop can be constructed with the following: instructions to execute, expressions that allow for the start and end of the loop, and a control variable that is updated on each iteration.

1. Identifying total loan payment while creating a budget. Loop: for loop using dict.items().

If I want to traverse through a dictionary of bills, I can use a for loop. Since dictionaries are mapping objects, they have a special method `__iter__()`. When iterating over a dictionary using a for loop, Python will call this method on the dictionary and return an iterator object. For this example I want to access all entries, so I will use `dict.items()`. Thus the iterator object will be a view of the dictionary's items in (key, value) pairs, allowing me to access both the bill names and amounts.

```
loan_pmts = []
bills = {'Lender': 500.00, 'Coffee': 15.75, 'Pharmacy': 39.99, 'Auto': 430.20, 'Rent': 1240.00, 'Grocer': 56.90, 'Gas': 40.00, 'Phone': 153.75}

for bill, amount in bills.items():
    if bill == "Lender" or bill == "Auto":
        loan_pmts.append(amount)

print(f'Total: ${sum(loan_pmts):.2f}')
```

2. Auto-reply email. Loop: While loop.

If I want to ensure that an auto-reply email is sent while I am unreachable, I can make use of a While loop. The loop will continue to execute the auto-reply email in response

to incoming mail while unreachable is True. This condition can be toggled in mail settings when unreachable is no longer True.

Thanks,
Lauren

References

The Python Language Reference. (n.d.). *Built-in Types: Dictionary view objects*

<https://docs.python.org/3/library/stdtypes.html#dictionary-view-objects>

The Python Language Reference. (n.d.). *Built-in Types: Mapping Types -- dict*

<https://docs.python.org/3/library/stdtypes.html#mapping-types-dict>