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PLACEMENT REFRESHER PROGRAM

Session 1: Python I

Basics, Data Types, Control Structures

By
Ritesh Kumar Pandey

Agenda

- Basics
- Data Types
- Control Structures

Introduction

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Python

- High Level
- General Purpose
- Interpreted
- Dynamically Typed

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Provides abstractions and simplifications making it Human Understandable language

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Web Development, Data Science, Artificial Intelligence, Machine Learning, Application Development, Data Analytics

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Executed Line by Line

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Web Development, Data Science, Artificial Intelligence, Machine Learning, Application Development, Data Analytics

Executed Line by Line

Variable types are determined at runtime
int x = 10 # not required
x = 10

Variable Assignment

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Question 1

Which of the following is invalid ?

a) it = 100
b) on = 200
c) in = ‘Hi’
d) apple = mango

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Answer

Which of the following is invalid ?

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b) on = 200
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Variable Assignment

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Answer

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a) it = 100
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in is a Keyword in Python, hence cannot be used a variable name.

There are a total of **35** keywords in Python.

True, False, None are the only capitalized keywords, rest all are small case

Variable Assignment

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Answer

Which of the following is invalid ?

a) it = 100
b) on = 200
c) in = ‘Hi’
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in is a Keyword in Python, hence cannot be used a variable name.

There are a total of **35** keywords in Python.

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```
import keyword

keywords = keyword.kwlist
print(" The total number of keywords in Python is : ", len(keywords))
print("\n The list of keywords in Python is : ", keywords)
```

Variable Assignment

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Answer

Which of the following is invalid ?

a) it = 100
b) on = 200
c) in = ‘Hi’
d) apple = mango

in is a Keyword in Python, hence cannot be used a variable name.

There are a total of **35** keywords in Python.

True, False, None are the only capitalized keywords, rest all are small case

```
import keyword

keywords = keyword.kwlist
print(" The total number of keywords in Python is : ", len(keywords))
print("\n The list of keywords in Python is : ", keywords)
```

mango is not defined

```
mango = 5
apple = mango
```

```
apple = ‘mango’
```

Data Types

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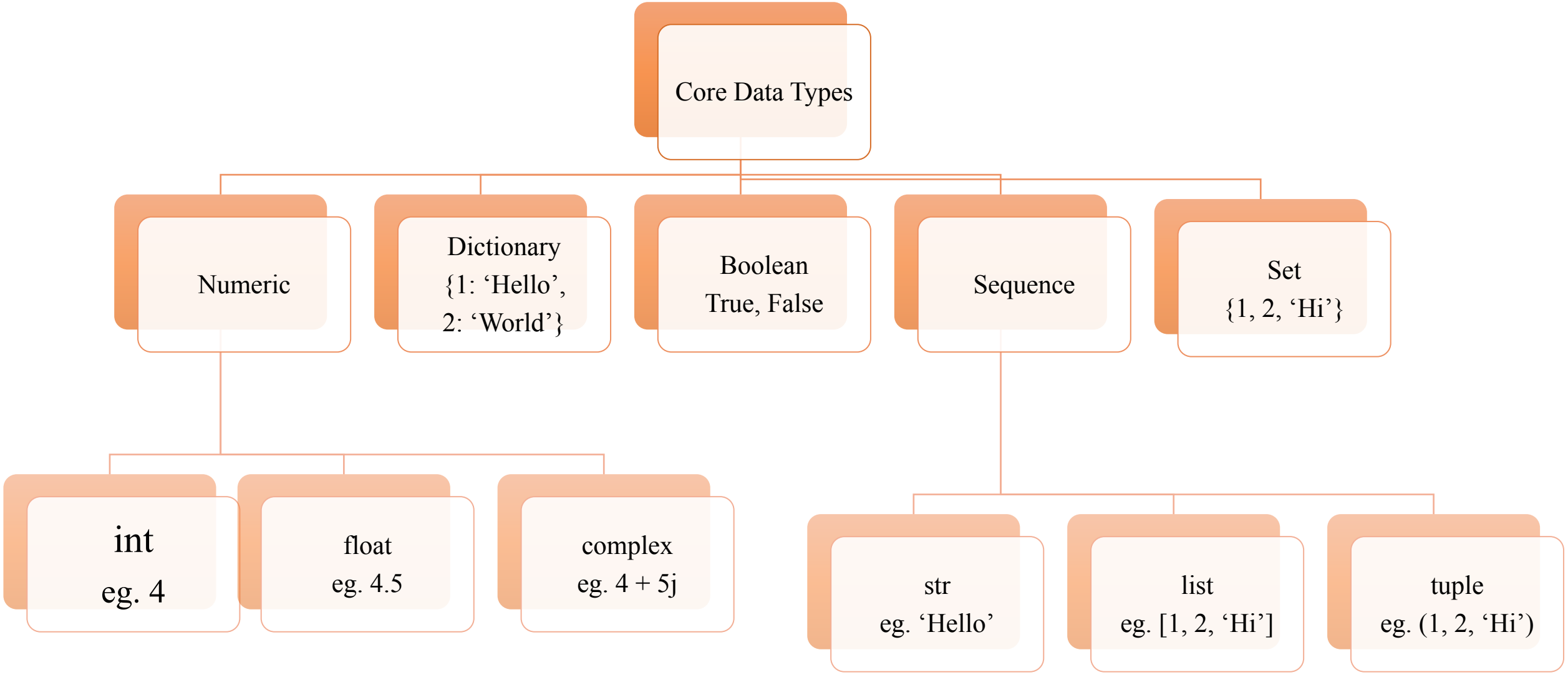

Question 2

```
x = input('Enter Something : ')
print(type(x))
```

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32
32.5
True

Answer

```
x = input('Enter Something : ')
print(type(x))
```

Class <'str'>

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32
32.5
True

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Question 3

```
var1 = ['Hi', 'Hello', 23]
print(type(var1))
var1[1] = 'Hey'
print(var1)
```

```
var2 = ('Hi', 'Hello', 23)
print(type(var2))
var2[1] = 'Hey'
print(var2)
```

```
var3 = {'Hi', 'Hello', 23}
print(type(var3))
var3[1] = 'Hey'
print(var3)
```

Data Types - List, Tuple, Set

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Answer

```
var1 = ['Hi', 'Hello', 23]
print(type(var1))
var1[1] = 'Hey'
print(var1)
```

```
var2 = ('Hi', 'Hello', 23)
print(type(var2))
var2[1] = 'Hey'
print(var2)
```

```
var3 = {'Hi', 'Hello', 23}
print(type(var3))
var3[1] = 'Hey'
print(var3)
```

class <'list'>
['Hi', 'Hey', 23]

Data Types - List, Tuple, Set

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Answer

```
var1 = ['Hi', 'Hello', 23]
print(type(var1))
var1[1] = 'Hey'
print(var1)
```

class <'list'>
['Hi', 'Hey', 23]

```
var2 = ('Hi', 'Hello', 23)
print(type(var2))
var2[1] = 'Hey'
print(var2)
```

class <'tuple'>
ERROR !

```
var3 = {'Hi', 'Hello', 23}
print(type(var3))
var3[1] = 'Hey'
print(var3)
```

Data Types - List, Tuple, Set

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Answer

```
var1 = ['Hi', 'Hello', 23]
print(type(var1))
var1[1] = 'Hey'
print(var1)
```

class <'list'>
['Hi', 'Hey', 23]

```
var2 = ('Hi', 'Hello', 23)
print(type(var2))
var2[1] = 'Hey'
print(var2)
```

class <'tuple'>
ERROR !

```
var3 = {'Hi', 'Hello', 23}
print(type(var3))
var3[1] = 'Hey'
print(var3)
```

class <'set'>
ERROR !

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Question 4

```
var1 = [‘Hi’, ‘Hello’, 23]
var1.append(‘Hey’)
var1.append(‘Hi’)
print(var1)
```

```
var2 = {‘Hi’, ‘Hello’, 23}
var2.add(‘Hey’)
var2.add(‘Hi’)
print(var2)
```

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Answer

```
var1 = [‘Hi’, ‘Hello’, 23]
var1.append(‘Hey’)
var1.append(‘Hi’)
print(var1)
```

```
var2 = {‘Hi’, ‘Hello’, 23}
var2.add(‘Hey’)
var2.add(‘Hi’)
print(var2)
```

[‘Hi’, ‘Hello’, 23, ‘Hey’, ‘Hi’]

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Answer

```
var1 = [‘Hi’, ‘Hello’, 23]
var1.append(‘Hey’)
var1.append(‘Hi’)
print(var1)
```

[‘Hi’, ‘Hello’, 23, ‘Hey’, ‘Hi’]

```
var2 = {‘Hi’, ‘Hello’, 23}
var2.add(‘Hey’)
var2.add(‘Hi’)
print(var2)
```

[‘Hi’, 23, ‘Hey’, ‘Hello’]

Data Types - List, Tuple, Set

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Aspect	List	Set	Tuple
Mutability	Mutable	Mutable	Immutable
Ordered	Ordered	Unordered	Ordered
Duplicates	Allowed	Not allowed	Allowed
Syntax	[ ]	{ }	( )

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Question 5

```
d = dict()
k = (1, 2, 3, 4)
d[k] = ‘Hey’
print(d)
```

```
d = dict()
k = [1, 2, 3, 4]
d[k] = ‘Hey’
print(d)
```

Data Types - Dictionary

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Answer

```
d = dict()
k = (1, 2, 3, 4)
d[k] = ‘Hey’
print(d)
```

{ (1, 2, 3, 4): ‘Hey’ }

```
d = dict()
k = [1, 2, 3, 4]
d[k] = ‘Hey’
print(d)
```

Data Types - Dictionary

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Answer

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
print(d)
```

{ (1, 2, 3, 4): 'Hey' }

```
d = dict()
k = [1, 2, 3, 4]
d[k] = 'Hey'
print(d)
```

ERROR !

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Question 6

```
d = dict()
k = (1, 2, 3, 4)
d[k] = ‘Hey’
m = (5, 6)
d[m] = ‘Hello’
print(d)
```

```
d = dict()
k = (1, 2, 3, 4)
d[k] = ‘Hey’
m = (1, 2, 3, 4)
d[m] = ‘Hello’
print(d)
```

```
d = dict()
k = (1, 2, 3, 4)
d[k] = ‘Hey’
m = ‘1, 2, 3, 4’
d[m] = ‘Hello’
print(d)
```

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Answer

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = (5, 6)
d[m] = 'Hello'
print(d)
```

{ (1, 2, 3, 4): 'Hey', (5, 6): 'Hello' }

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = (1, 2, 3, 4)
d[m] = 'Hello'
print(d)
```

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = '1, 2, 3, 4'
d[m] = 'Hello'
print(d)
```

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Answer

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = (5, 6)
d[m] = 'Hello'
print(d)
```

{ (1, 2, 3, 4): 'Hey', (5, 6): 'Hello' }

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = (1, 2, 3, 4)
d[m] = 'Hello'
print(d)
```

{ (1, 2, 3, 4): 'Hello' }

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = '1, 2, 3, 4'
d[m] = 'Hello'
print(d)
```

Data Types - Dictionary

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Answer

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = (5, 6)
d[m] = 'Hello'
print(d)
```

{ (1, 2, 3, 4): 'Hey', (5, 6): 'Hello' }

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = (1, 2, 3, 4)
d[m] = 'Hello'
print(d)
```

{ (1, 2, 3, 4): 'Hello' }

```
d = dict()
k = (1, 2, 3, 4)
d[k] = 'Hey'
m = '1, 2, 3, 4'
d[m] = 'Hello'
print(d)
```

{ (1, 2, 3, 4): 'Hey', '1, 2, 3, 4': 'Hello' }

Control Statements

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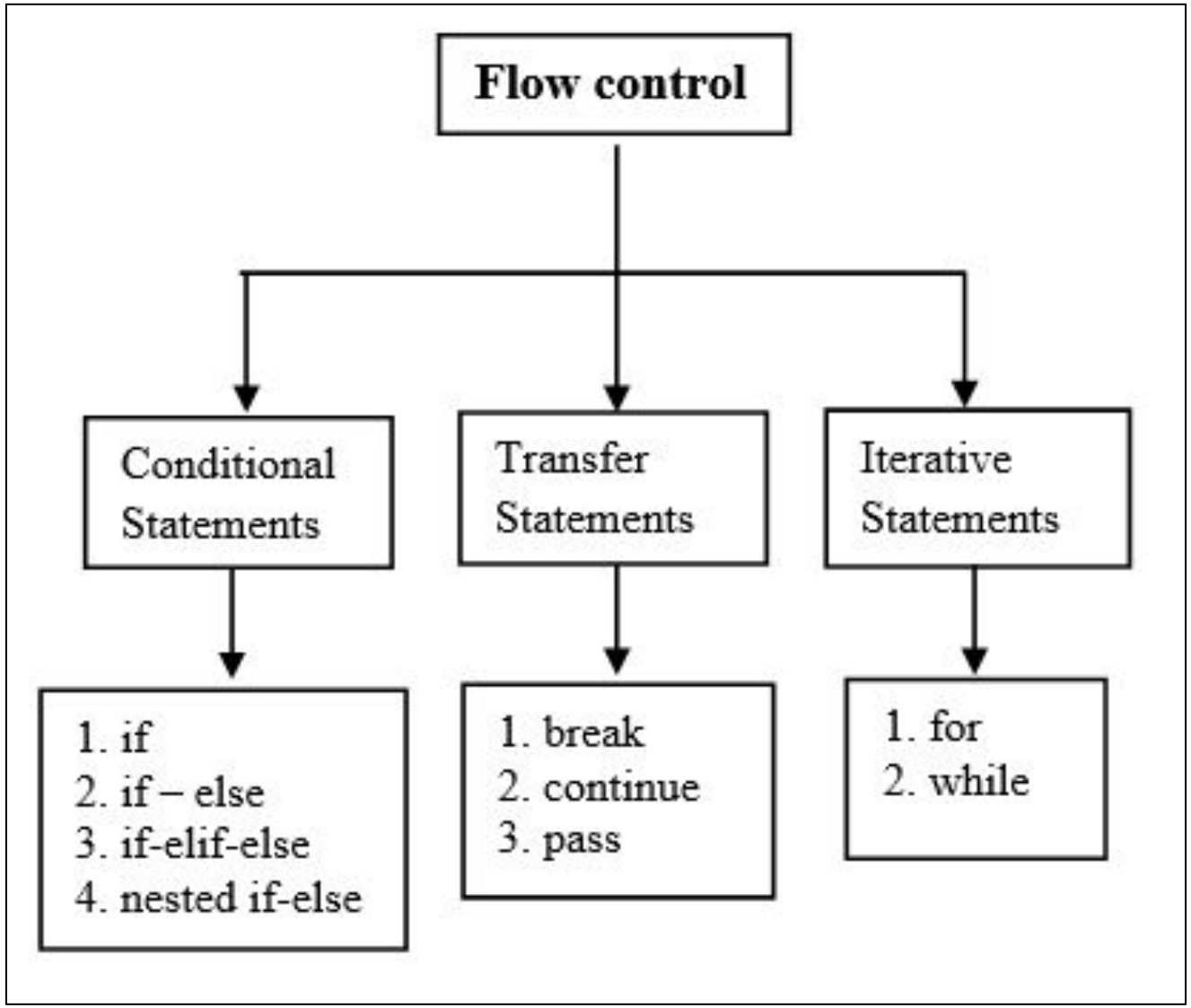

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Question 7

```
for i in range(0, 10):
    if i % 2 == 0:
        print(i)
    elif i % 5 == 0:
        continue
        print('Divisible by 5')
    elif i == 7:
        break
    else:
        print('No')

    print('something \n')
```

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Answer

```
for i in range(0, 10):
    if i % 2 == 0:
        print(i)
    elif i % 5 == 0:
        continue
        print('Divisible by 5')
    elif i == 7:
        break
    else:
        print('No')

    print('something \n')
```

```
0
something

No
something

2
something

No
something

4
something
6
something
```

Question 8

Given the following code, please rewrite it in Python after fixing all syntax errors. Please underline each correction you made.

```
30 = To
for k in (0, To):
    if k / 4 == 0:
        print(k is divisible by 4)
    else:
        print(k is not divisible by 4)
```

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Answer

Given the following code, please rewrite it in Python after fixing all syntax errors. Please underline each correction you made.

```
30 = To
for k in (0, To):
    if k / 4 == 0:
        print(k is divisible by 4)
    else:
        print(k is not divisible by 4)
```

```
To = 30
for k in range(0, To):
    if k % 4 == 0:
        print(k + 'is divisible by 4')
    else:
        print(k + 'is not divisible by 4')
```

Question 9

Input: [1, 2, 3, 6, 4, 8]
Output: [8, 4, 6, 3, 2, 1]

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Answer

Input: [1, 2, 3, 6, 4, 8]
Output: [8, 4, 6, 3, 2, 1]

```
list_name = list(reversed(list_name))
```

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Answer

Input: [1, 2, 3, 6, 4, 8]
Output: [8, 4, 6, 3, 2, 1]

```
list_name = list(reversed(list_name))
```

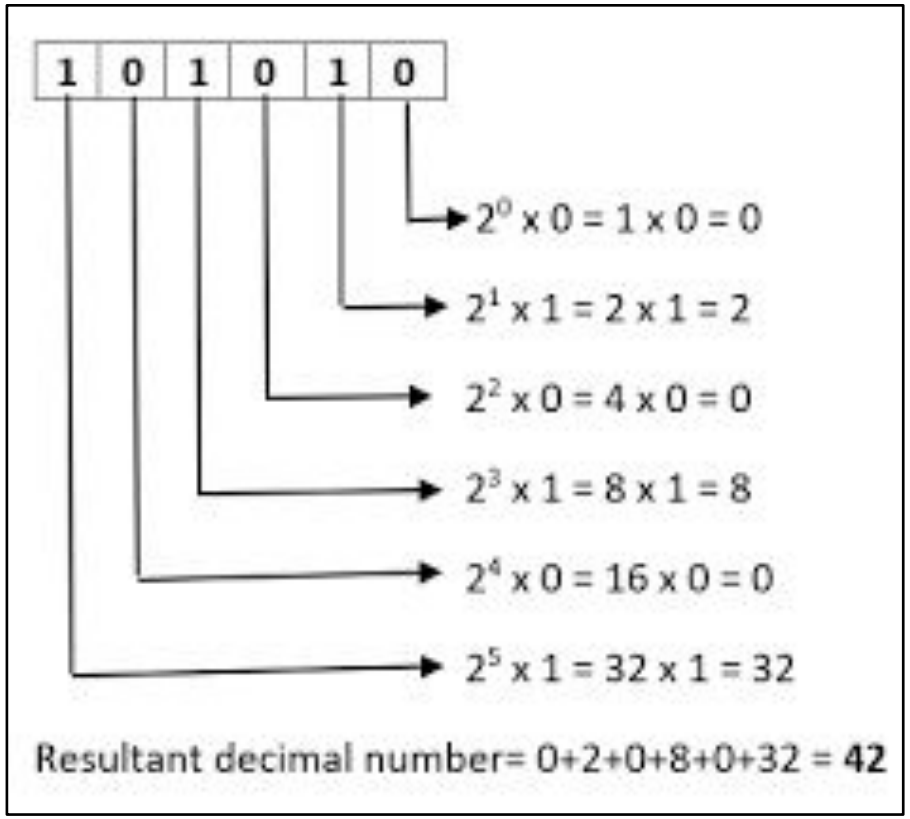
```
left = 0
right = len(list_name) – 1
while left < right:
    ll[left], ll[right] = ll[right], ll[left]
    left += 1
    right -= 1
print(original_list)
```

Question 10

Input: 0100, 0011, 1010, 1001, 1100, 1011, 0101
Output : 1010, 0101

Answer

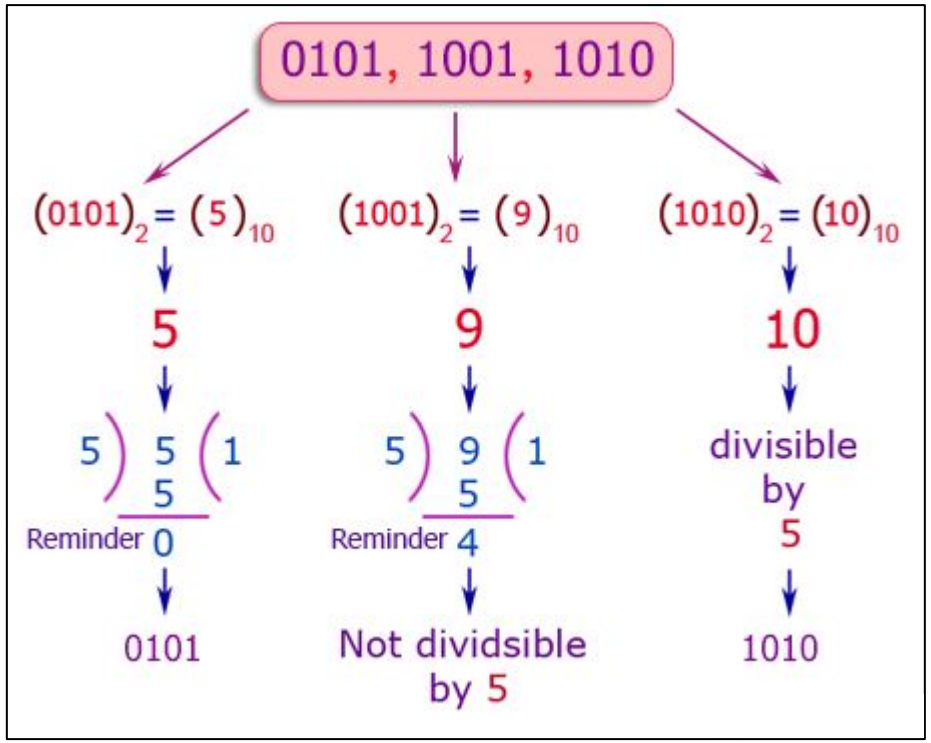
Input: 0100, 0011, 1010, 1001, 1100, 1011, 0101
Output : 1010, 0101



Answer

Binary Number divisible by 5

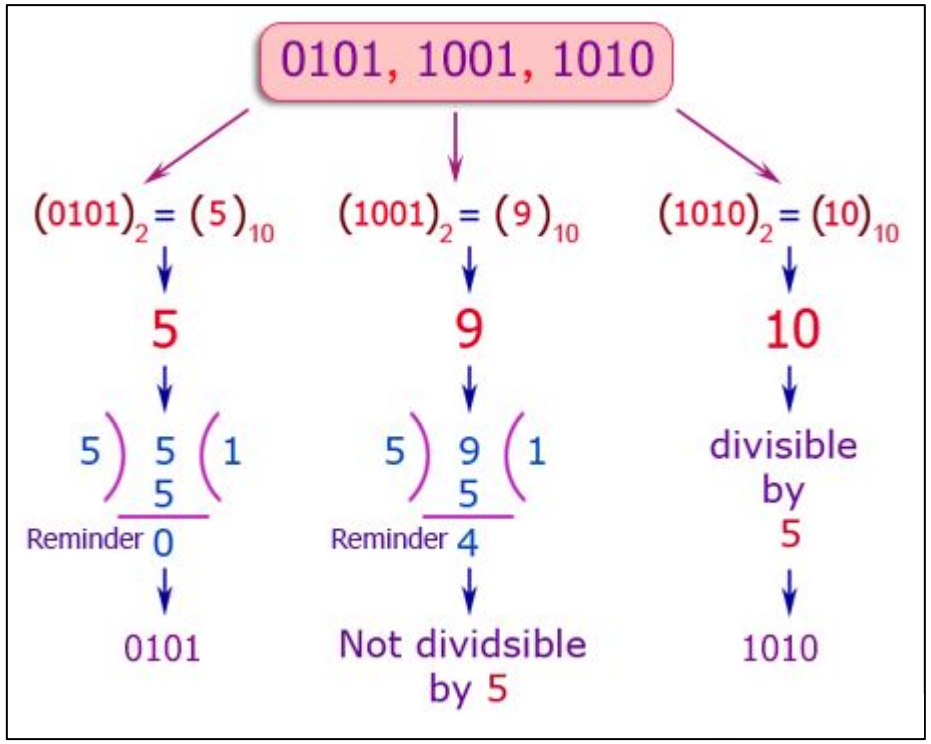
Input: 0100, 0011, 1010, 1001, 1100, 1011, 0101
Output : 1010, 0101



Answer

Binary Number divisible by 5

Input: 0100, 0011, 1010, 1001, 1100, 1011, 0101
Output : 1010, 0101




```
items = []

for p in input_list:
    x = int(p, 2)
    if not x%5:
        items.append(p)

print(','.join(items))
```

THANK YOU