# IT3041 - Information Retrieval and Web Analytics

# Lab Sheet 01

**1. Concatenate two lists index-wise**

teams = ["India", "England", "NZ", "Aus"]

captains = ["Kohli", "Root", "Williaamson", "Smith"]

**2. Calculate total amount spent for each item in parallel lists**

books = ["textbooks", "exercise books", "story book", "drawing books"]

prices = [100, 60, 90, 70]

quantities = [3, 2, 1, 4]

**3. Add 10 to each item in a list**

List1 = [2, 4, 6, 8, 10]

**4. Iterate two lists: one in original and one in reverse order**

list1 = [10, 20, 30, 40]

list2 = ["Apples", "Mangoes", "Oranges", "Grapes"]

**5. Extend a nested list by adding ["h", "i", "j"] into the correct sublist**

list1 = ["a", "b", ["c", ["d", "e", ["f", "g"], "k"], "l"], "m", "n"]

sub_list = ["h", "i", "j"]

**6. Remove all occurrences of item 15**

List1 = [10, 15, 20, 15, 32, 54, 15]

**7. Merge two dictionaries**

```
dict_1 = {'John': 15, 'Rick': 10, 'Misa': 12}
dict_2 = {'Bonnie': 18, 'Rick': 20, 'Matt': 16}
```

**8. Change the key of the first entry from 0 to 4 in the dictionary**

```
d = {0: 0, 1: 1, 2: 2, 3: 3}
```

**9. Convert two lists to a dictionary**

```
country = ["USA", "France", "India"]
capital = ["Washington D.C.", "Paris", "New Delhi"]
```

**10. Delete a set of keys from a dictionary**

```
My_dict = {
  "Fruit": "Pear",
  "Vegetable": "Carrot",
  "Pet": "Cat",
  "Book": "Moby dick",
  "Crystal": "Amethyst"
}
keysToRemove = ["Book", "Crystal"]
```

**11. Extract specific keys from a dictionary**

```
sub_dict = {'math': 100, 'chem': 98, 'sci': 100, 'eng': 100}
key_to_extract = {'math', 'chem', 'sci'}
```

**12. Display numbers divisible by 5**

```
list1 = [12, 15, 32, 42, 55, 75, 122, 132, 150, 180, 200]
```

**13. Display numbers based on multiple conditions:**

- Divisible by 5
- Skip if > 150
- Stop loop if > 500

numbers = [12, 75, 150, 180, 145, 525, 50]

**14. Count uppercase, lowercase, digits, and special characters in a string**

Original Substring = "@W3Resource.Com"

**15. Calculate the sum of a series up to n terms (e.g., 2 + 22 + 222 ...)**

If n = 5 → 2 + 22 + 222 + 2222 + 22222

Question 01

In [1]:
```
teams = ["India", "England", "NZ", "Aus"]
captains = ["Kohli", "Root", "Williaamson", "Smith"]

print(list(zip(teams, captains)))
print(dict(zip(teams, captains)))
```

```
[('India', 'Kohli'), ('England', 'Root'), ('NZ', 'Williaamson'), ('Aus', 'Smit
h')]
{'India': 'Kohli', 'England': 'Root', 'NZ': 'Williaamson', 'Aus': 'Smith'}
```

Question 02

In [2]:
```
books = ["textbooks", "exercise books", "story book", "drawing books"]
prices = [100, 60, 90, 70]
quantities = [3, 2, 1, 4]

for book, price, quantity in zip(books, prices, quantities):
    total = price * quantity
    print(f"You bought {quantity} {book} for ${total}")
```

```
You bought 3 textbooks for $300
You bought 2 exercise books for $120
You bought 1 story book for $90
You bought 4 drawing books for $280
```

Question 03

In [3]:
```
list1 = [2, 4, 6, 8, 10]
result = [x + 10 for x in list1]
print(result)
```

```
[12, 14, 16, 18, 20]
```

Question 04

In [4]:
```
list1 = [10, 20, 30, 40]
list2 = ["Apples", "Mangoes", "Oranges", "Grapes"]

for a, b in zip(list1, reversed(list2)):
    print(a, b)
```

```
10 Grapes
20 Oranges
30 Mangoes
40 Apples
```

Question 05

In [5]:
```
list1 = ["a", "b", ["c", ["d", "e", ["f", "g"], "k"], "l"], "m", "n"]
sub_list = ["h", "i", "j"]

list1[2][1][2].extend(sub_list)
print(list1)
```

```
['a', 'b', ['c', ['d', 'e', ['f', 'g', 'h', 'i', 'j'], 'k'], 'l'], 'm', 'n']
```

Question 06

In [6]:
```
list1 = [10, 15, 20, 15, 32, 54, 15]
result = [x for x in list1 if x != 15]
print(result)
```

```
[10, 20, 32, 54]
```

Question 07

In [7]:
```
dict_1 = {'John': 15, 'Rick': 10, 'Misa': 12}
dict_2 = {'Bonnie': 18, 'Rick': 20, 'Matt': 16}

dict_1.update(dict_2)
print(dict_1)
```

```
{'John': 15, 'Rick': 20, 'Misa': 12, 'Bonnie': 18, 'Matt': 16}
```

Question 08

In [8]:
```
d = {0: 0, 1: 1, 2: 2, 3: 3}
d[4] = d.pop(0)
print(d)
```

```
{1: 1, 2: 2, 3: 3, 4: 0}
```

Question 09

In [9]:
```
country = ["USA", "France", "India"]
capital = ["Washington D.C.", "Paris", "New Delhi"]

result = dict(zip(country, capital))
print(result)
```

```
{'USA': 'Washington D.C.', 'France': 'Paris', 'India': 'New Delhi'}
```

Question 10

In [10]:
```
My_dict = {
    "Fruit": "Pear",
    "Vegetable": "Carrot",
    "Pet": "Cat",
    "Book": "Moby dick",
    "Crystal": "Amethyst"
}
keysToRemove = ["Book", "Crystal"]

for key in keysToRemove:
    My_dict.pop(key, None)

print(My_dict)
```

```
{'Fruit': 'Pear', 'Vegetable': 'Carrot', 'Pet': 'Cat'}
```

Question 11

In [11]:
```
sub_dict = {'math': 100, 'chem': 98, 'sci': 100, 'eng': 100}
key_to_extract = {'math', 'chem', 'sci'}

result = {k: sub_dict[k] for k in key_to_extract}
print(result)
```

```
{'math': 100, 'sci': 100, 'chem': 98}
```

Question 12

In [12]:
```
list1 = [12, 15, 32, 42, 55, 75, 122, 132, 150, 180, 200]
result = [x for x in list1 if x % 5 == 0]
print(result)
```

```
[15, 55, 75, 150, 180, 200]
```

Question 13

In [13]:
```
numbers = [12, 75, 150, 180, 145, 525, 50]

for num in numbers:
    if num > 500:
        break
    if num > 150:
        continue
    if num % 5 == 0:
        print(num)
```

```
75
150
145
```

Question 14

In [14]:
```
text = "@W3Resource.Com"

upper = lower = digit = special = 0

for ch in text:
    if ch.isupper():
        upper += 1
    elif ch.islower():
        lower += 1
    elif ch.isdigit():
        digit += 1
    else:
        special += 1

print("Upper case characters:", upper)
print("Lower case characters:", lower)
print("Number case:", digit)
print("Special case characters:", special)
```

```
Upper case characters: 3
Lower case characters: 9
Number case: 1
Special case characters: 2
```

Question 15

In [15]:
```
n = 5
num = ''
total = 0

for i in range(n):
    num += '2'
```

```
    total += int(num)
    print(num, end='+')

print(f"\nSum of above series is: {total}")
```

```
2+22+222+2222+22222+
Sum of above series is: 24690
```