

### ASSIGNMENT - 3

### PYTHON PROGRAMMING

Assignment Date	01 September 2022
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Student Roll Number	311819205027
Maximum Marks	2 Marks

Answer the questions or complete the tasks outlined in bold below, use the specific method described if applicable.

**What is 7 to the power of 4?**

In [1]:

```
7 **4
```

Out[1]:

```
2401
```

**Split this string:**

```
s = "Hi there Sam!"
```

**into a list.**

In [4]:

```
s = 'Hi there Sam!'
```

In [3]:

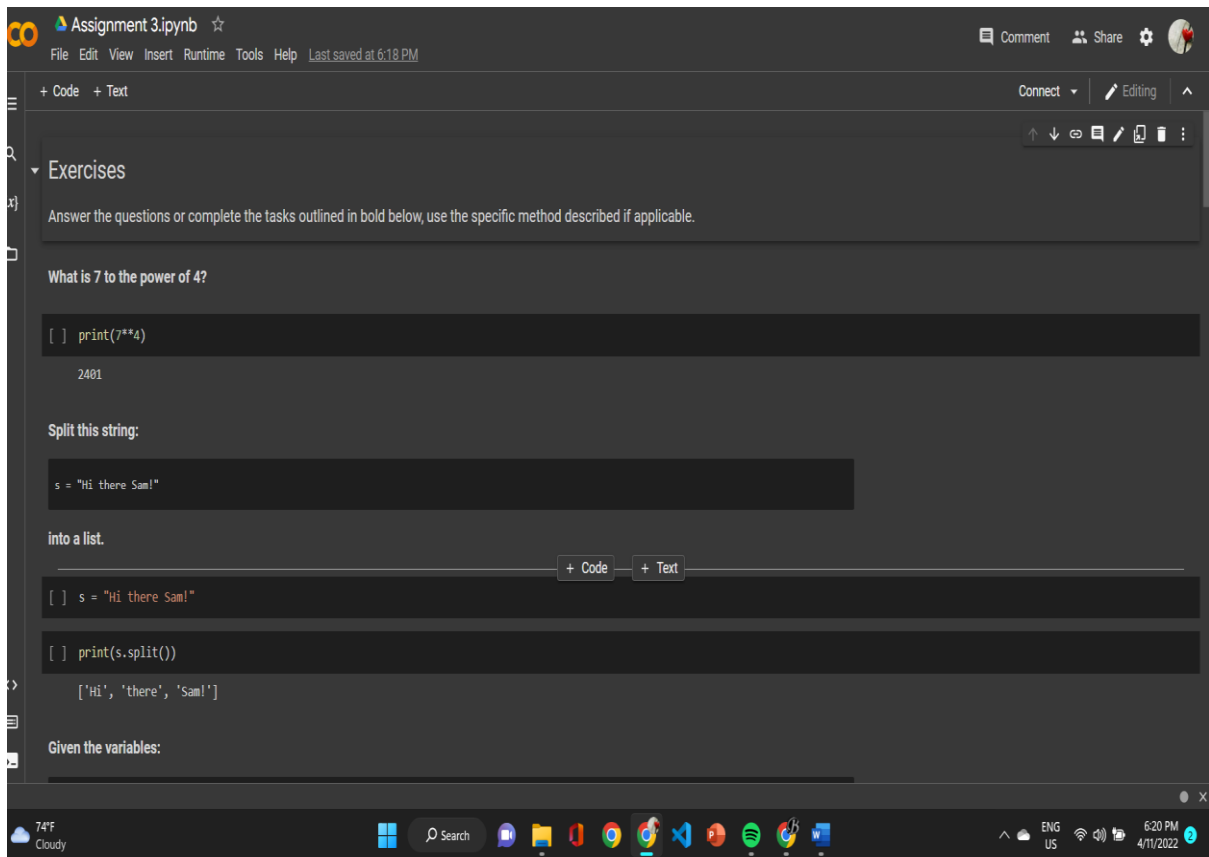
```
s.split()
```

Out[3]:

```
['Hi', 'there', 'dad!']
```

**Given the variables:**

```
planet = "Earth" diameter = 12742
```



**Use .format() to print the following string:**

The diameter of Earth is 12742 kilometers.

In [5]:

```
planet = "Earth"
```

```
diameter = 12742
```

In [6]:

```
print("The diameter of {} is {} kilometers.".format(planet,diameter))
```

The diameter of Earth is 12742 kilometers.

**Given this nested list, use indexing to grab the word "hello"**

In [7]:

```
lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
```

In [14]:

```
lst[3][1][2][0]
```

Out[14]:

'hello'

The screenshot shows a Jupyter Notebook window titled 'Assignment 3.ipynb'. The interface includes a top bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help' menus, along with a 'Last saved at 6:18 PM' timestamp. On the right, there are icons for 'Comment', 'Share', and a user profile. The notebook content is divided into cells. The first cell is a code cell with the following Python code: 

```
[ ] print(s.split())  
[ ] ['Hi', 'there', 'Sam!']
```

 Below this is a text cell asking to use variables. The next cell is a code cell defining variables: 

```
planet = "Earth"  
diameter = 12742
```

 This is followed by a text cell instructing to use `.format()` to print a string. The subsequent cell is a code cell that prints the formatted string: 

```
[ ] print("The diameter of {} is {} kilometers.".format(planet, diameter))
```

 The output of this cell is 'The diameter of Earth is 12742 kilometers.' Below this is another text cell asking to use indexing on a nested list. The final cell is a code cell with the following Python code: 

```
[ ] lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]  
[ ] print(lst[3][1][2][0])
```

**Given this nest dictionary grab the word "hello". Be prepared, this will be annoying/tricky**

In [16]:

```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

In [22]:

```
d['k1'][3]['tricky'][3]['target'][3]
```

Out[22]:

'hello'

**What is the main difference between a tuple and a list?**

In [23]:

```
# Tuple is immutable
```

Create a function that grabs the email website domain from a string in the form:

[user@domain.com](mailto:user@domain.com)

So for example, passing "user@domain.com" would return: domain.com

In [24]:

```
def domainGet(email):  
    return email.split('@')[-1]
```

In [26]:

```
domainGet('user@domain.com')
```

Out[26]:

'domain.com'

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```
[ ] d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

. The second cell contains a print statement: 

```
[ ] print(d['k1'][3]['tricky'][3]['target'][3])
```

, which outputs "hello". Below the code cells, there are two text prompts: "What is the main difference between a tuple and a list?" and "List is mutable, whereas Tuple is immutable.". The next prompt is "Create a function that grabs the email website domain from a string in the form:", followed by a code cell containing the function definition: 

```
[ ] def domain(email):  
    email_breakup = email.split('@')  
    return email_breakup[1]
```

. The final prompt is "So for example, passing "user@domain.com" would return: domain.com".

**Create a basic function that returns True if the word 'dog' is contained in the input string. Don't worry about edge cases like a punctuation being attached to the word dog, but do account for capitalization.**

In [27]:

```
def findDog(st):
```

```
    return 'dog' in st.lower().split()
```

In [28]:

```
findDog('Is there a dog here?')
```

Out[28]:

True

The screenshot shows a Jupyter Notebook window titled "Assignment 3.ipynb". The interface includes a top bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help" menus, along with a "Last saved at 6:18 PM" timestamp. On the left, there is a sidebar with icons for a menu, search, variables, and files. The main area displays a code cell with the following Python code:

```
[ ] print(domain('user@domain.com'))
```

The output of this cell is "domain.com". Below this, a text cell contains the instruction: "Create a basic function that returns True if the word 'dog' is contained in the input string. Don't worry about edge cases like a punctuation being attached to the word dog, but do account for capitalization." This is followed by another code cell containing a function definition:

```
def contains_dog(sentence):
    words = sentence.split(' ')
    k = 0

    for i in range(len(words)):
        words[i] = words[i].lower()

    for i in words:
        if(i == 'dog'):
            k = 1
            return True

    if(k == 0):
        return False
```

Below the function definition, there is a code cell with the following code:

```
[ ] print(contains_dog('There goes a dog'))
```

The output of this cell is "True". At the bottom of the notebook, there is a text cell with the instruction: "Create a function that counts the number of times the word 'dog' occurs in a string. Again ignore edge cases."

Create a function that counts the number of times the word "dog" occurs in a string. Again ignore edge cases.

In [30]:

```
def countDog(st):  
    count = 0  
  
    for word in st.lower().split():  
        if word == 'dog':  
            count += 1  
  
    return count
```

In [31]:

```
countDog('This dog runs faster than the other dog dude!')
```

Out[31]:

2

The screenshot shows a Jupyter Notebook window titled "Assignment 3.ipynb". The interface includes a top bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help" menus, along with a "Last saved at 6:18 PM" timestamp. Below the menu bar, there are tabs for "+ Code" and "+ Text", and a "Connect" button. The main area displays a code cell with the following Python code:

```
[ ] def dog_count(sentence):  
    words = sentence.split(' ')  
    k = 0  
  
    for i in range(len(words)):  
        words[i] = words[i].lower()  
  
    for i in words:  
        if i == 'dog':  
            k+=1  
  
    return k
```

Below the code cell, there is a run button (a play icon) and the output of the function call: `print(dog_count('There goes a dog and another dog'))` followed by the value `2`.

At the bottom of the notebook, there is a "Problem" section with a description: "You are driving a little too fast, and a police officer stops you. Write a function to return one of 3 possible results: 'No ticket', 'Small ticket', or 'Big Ticket'. If your speed is 60 or less, the result is 'No Ticket'. If speed is between 61 and 80 inclusive, the result is 'Small Ticket'. If speed is 81 or more, the result is 'Big Ticket'. Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your birthday, your speed can be 5 higher in all cases."

You are driving a little too fast, and a police officer stops you. Write a function to return one of 3 possible results: "No ticket", "Small ticket", or "Big Ticket". If your speed is 60 or less, the result is "No Ticket". If speed is between 61 and 80 inclusive, the result is "Small Ticket". If speed is 81 or more, the result is "Big Ticket". Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your birthday, your speed can be 5 higher in all cases.

In [4]:

```
def caught_speeding(speed, is_birthday):
```

```
    if is_birthday:
```

```
        speeding = speed - 5
```

```
    else:
```

```
        speeding = speed
```

```
    if speeding > 80:
```

```
        return 'Big Ticket'
```

```
    elif speeding > 60:
```

```
        return 'Small Ticket'
```

```
    else:
```

```
        return 'No Ticket'
```

In [5]:

```
caught_speeding(81,True)
```

Out[5]:

```
'Small Ticket'
```

In [6]:

```
caught_speeding(81,False)
```

Out[6]:

```
'Big Ticket'
```

The screenshot shows a Jupyter Notebook titled "Assignment 3.ipynb". The interface includes a top menu bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". Below the menu is a toolbar with icons for "Code", "Text", "Connect", "Editing", and a "Run" button. The main area contains a code cell with the following Python code:

```
[ ] print('dog count: there goes a dog and another dog')  
  
2  
  
{x} Problem  
  
[ ] You are driving a little too fast, and a police officer stops you. Write a function to return one of 3 possible results: "No ticket", "Small ticket", or  
"Big Ticket". If your speed is 60 or less, the result is "No Ticket". If speed is between 61 and 80 inclusive, the result is "Small Ticket". If speed is  
81 or more, the result is "Big Ticket". Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your  
birthday, your speed can be 5 higher in all cases.  
  
[ ] def caught_speeding(speed, is_birthday):  
  
    if is_birthday:  
        speeding = speed - 5  
    else:  
        speeding = speed  
  
    if speeding > 80:  
        return 'Big Ticket'  
    elif speeding > 60:  
        return 'Small Ticket'  
    else:  
        return 'No Ticket'  
  
[ ] print(caught_speeding(90, False))  
  
Big Ticket
```

Create an employee list with basic salary values(at least 5 values for 5 employees) and using a for loop retrieve each employee salary and calculate total salary expenditure.



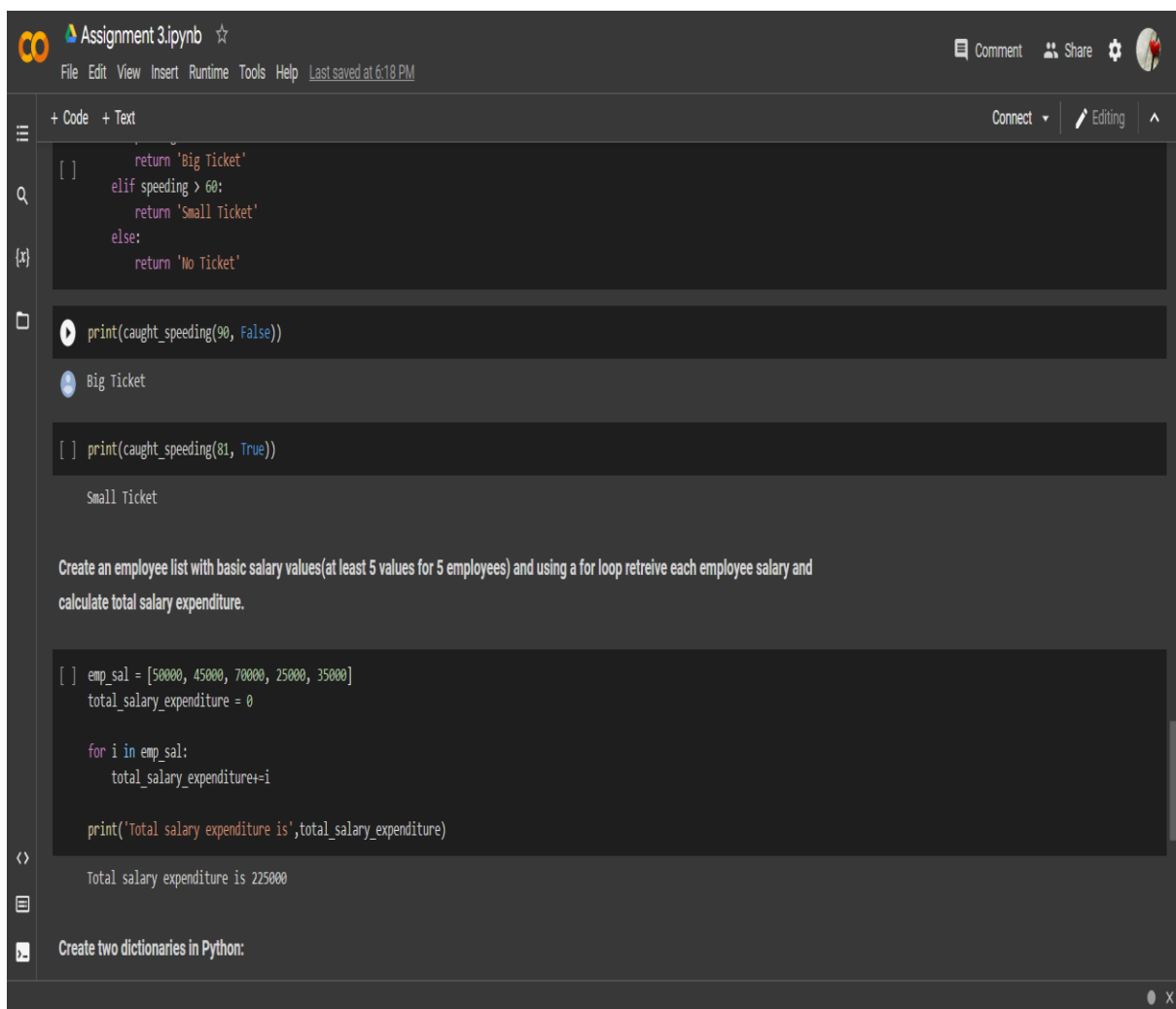
```
emp_sal = [50000, 45000, 70000, 25000, 35000]
```

```
total_salary_expenditure = 0
```

```
for i in emp_sal:
```

```
    total_salary_expenditure+=i
```

```
print('Total salary expenditure is',total_salary_expenditure)
```



The screenshot shows a Jupyter Notebook window titled "Assignment 3.ipynb". The interface includes a menu bar (File, Edit, View, Insert, Runtime, Tools, Help) and a toolbar with options like Comment, Share, and a settings icon. The notebook is in "Editing" mode. The code is organized into cells:

- A code cell containing a function definition for `caught_speeding` that returns 'Big Ticket', 'Small Ticket', or 'No Ticket' based on speed and whether the driver was caught.
- An interactive cell where the function is called with `caught_speeding(90, False)`, resulting in the output "Big Ticket".
- Another interactive cell where the function is called with `caught_speeding(81, True)`, resulting in the output "Small Ticket".
- A text cell with the instruction: "Create an employee list with basic salary values(at least 5 values for 5 employees) and using a for loop retrieve each employee salary and calculate total salary expenditure."
- A code cell containing the implementation of the task:

```
[ ] emp_sal = [50000, 45000, 70000, 25000, 35000]
total_salary_expenditure = 0

for i in emp_sal:
    total_salary_expenditure+=i

print('Total salary expenditure is',total_salary_expenditure)
```
- An output cell showing the result: "Total salary expenditure is 225000".
- A final text cell at the bottom with the instruction: "Create two dictionaries in Python:".

**Create two dictionaries in Python:**

**First one to contain fields as Empid, Empname, Basicpay**

**Second dictionary to contain fields as DeptName, DeptId.**

**Combine both dictionaries.**

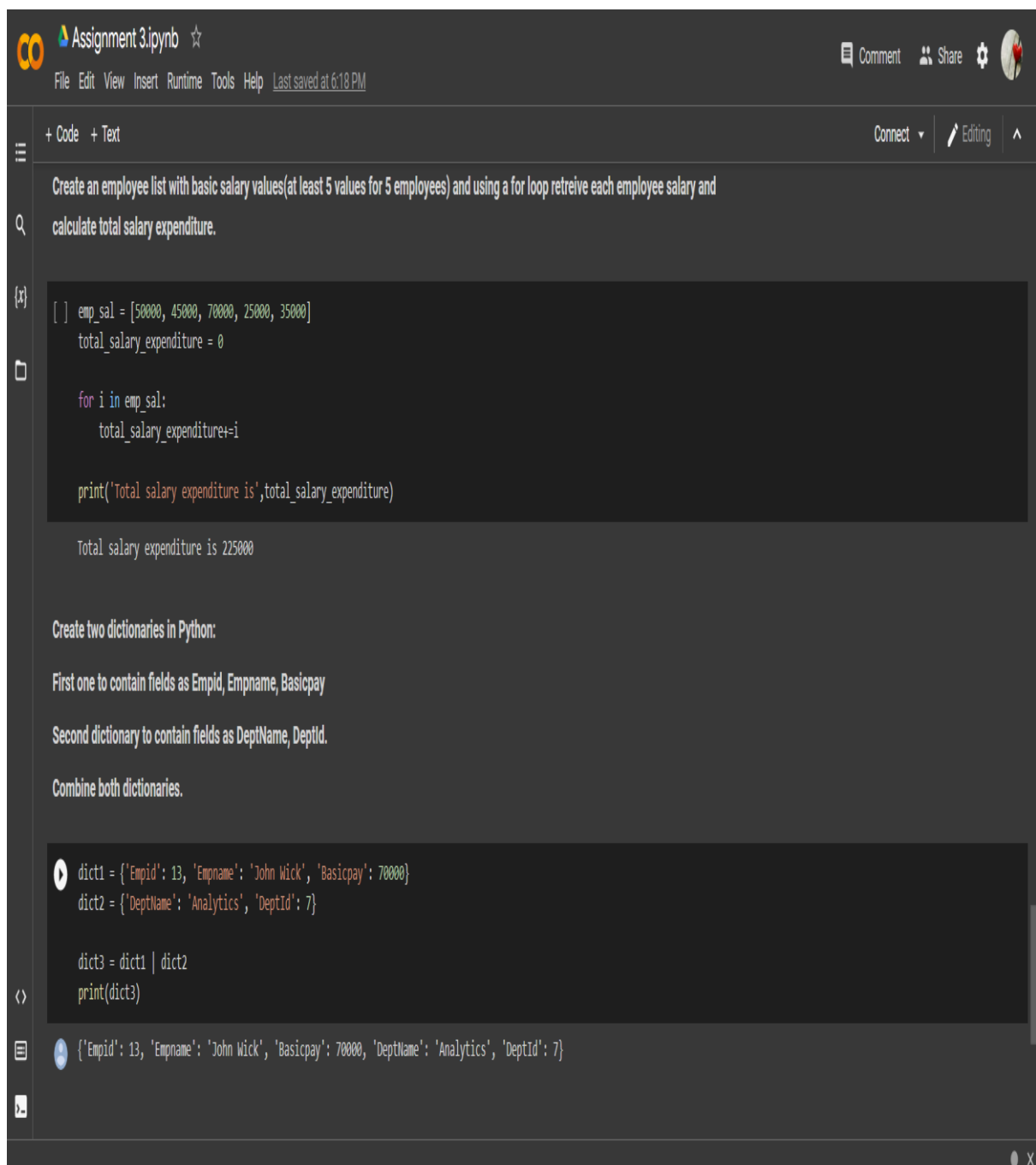
```
dict1 = {'Empid': 13, 'Empname': 'John Wick', 'Basicpay': 70000}
```

```
dict2 = {'DeptName': 'Analytics', 'DeptId': 7}
```

```
dict3 = dict1 | dict2
```

```
print(dict3)
```

```
{'Empid': 13, 'Empname': 'John Wick', 'Basicpay': 70000, 'DeptName': 'Analytics', 'DeptId': 7}
```



Assignment 3.ipynb ☆

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+ Code + Text Connect Editing ^

Create an employee list with basic salary values(at least 5 values for 5 employees) and using a for loop retrieve each employee salary and calculate total salary expenditure.

```
[ ] emp_sal = [50000, 45000, 70000, 25000, 35000]
total_salary_expenditure = 0

for i in emp_sal:
    total_salary_expenditure+=i

print('Total salary expenditure is',total_salary_expenditure)
```

Total salary expenditure is 225000

Create two dictionaries in Python:

First one to contain fields as Empid, Empname, Basicpay

Second dictionary to contain fields as DeptName, DeptId.

Combine both dictionaries.

```
dict1 = {'Empid': 13, 'Empname': 'John Wick', 'Basicpay': 70000}
dict2 = {'DeptName': 'Analytics', 'DeptId': 7}

dict3 = dict1 | dict2
print(dict3)
```

```
{'Empid': 13, 'Empname': 'John Wick', 'Basicpay': 70000, 'DeptName': 'Analytics', 'DeptId': 7}
```