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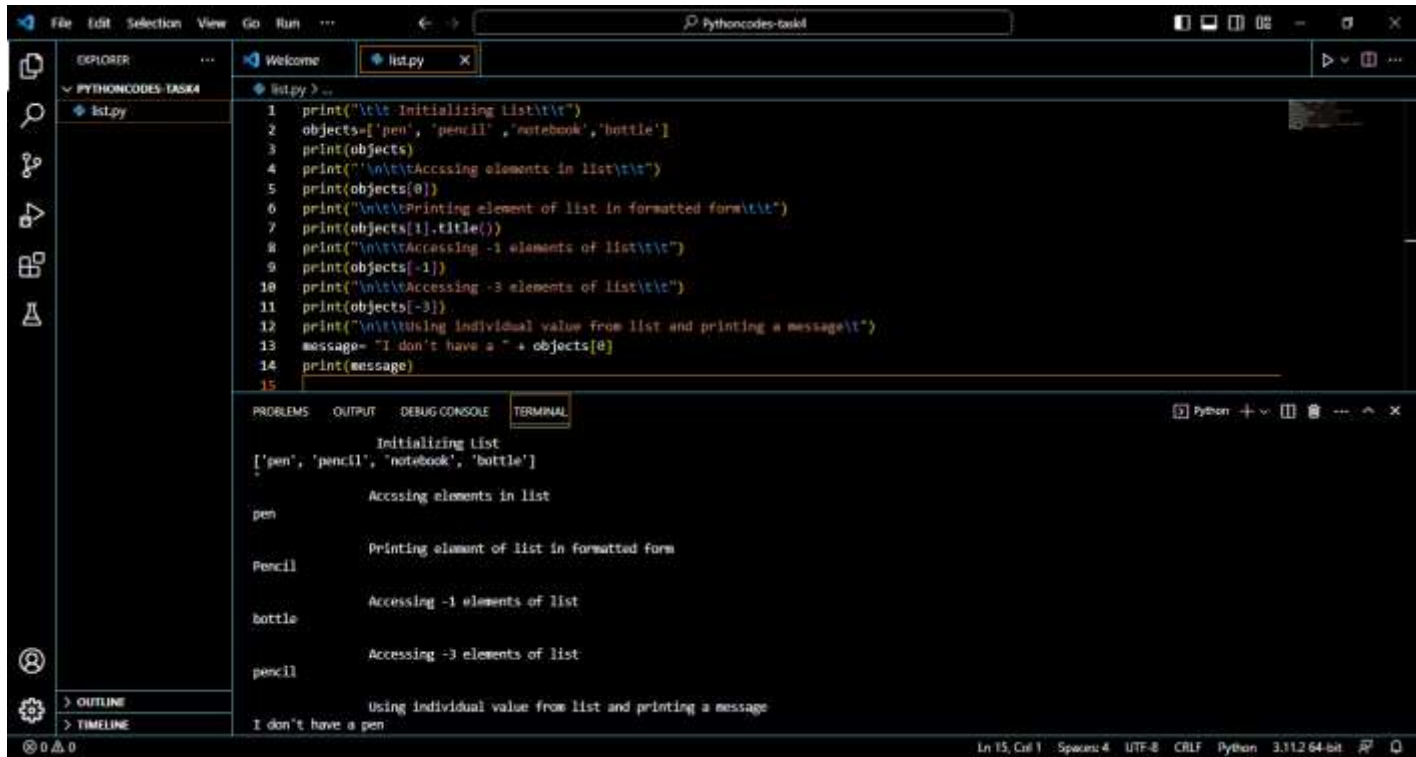
TASK # 04

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Lists

- Creating, Accessing elements in List



The screenshot shows a VS Code editor window with a Python file named `list.py`. The code defines a list `objects` and performs various operations on it. The terminal output shows the execution results.

```
1 print("\t\t Initializing list\t\t")
2 objects=['pen', 'pencil', 'notebook', 'bottle']
3 print(objects)
4 print("\n\t\t Accessing elements in list\t\t")
5 print(objects[0])
6 print("\n\t\t Printing element of list in formatted form\t\t")
7 print(objects[1], title())
8 print("\n\t\t Accessing -1 elements of list\t\t")
9 print(objects[-1])
10 print("\n\t\t Accessing -3 elements of list\t\t")
11 print(objects[-3])
12 print("\n\t\t Using individual value from list and printing a message\t")
13 message= "I don't have a " + objects[0]
14 print(message)
15
```

Terminal Output:

```
Initializing list
['pen', 'pencil', 'notebook', 'bottle']

Accessing elements in list
pen

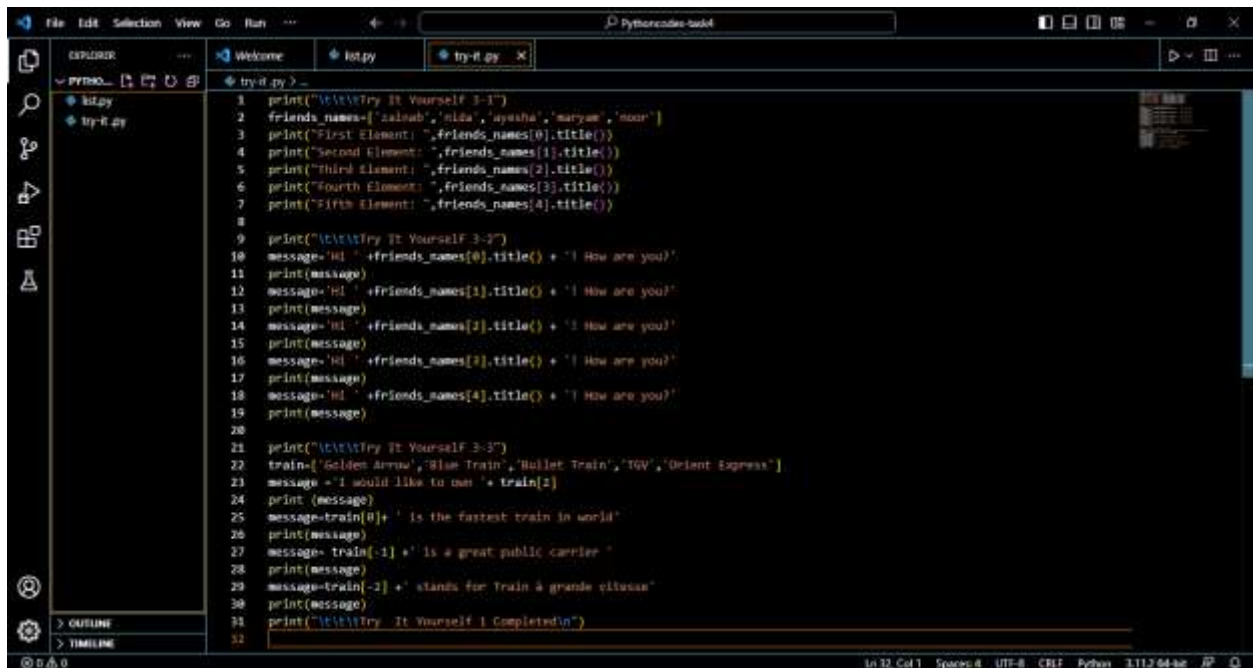
Printing element of list in formatted form
Pencil

Accessing -1 elements of list
bottle

Accessing -3 elements of list
pencil

Using individual value from list and printing a message
I don't have a pen
```

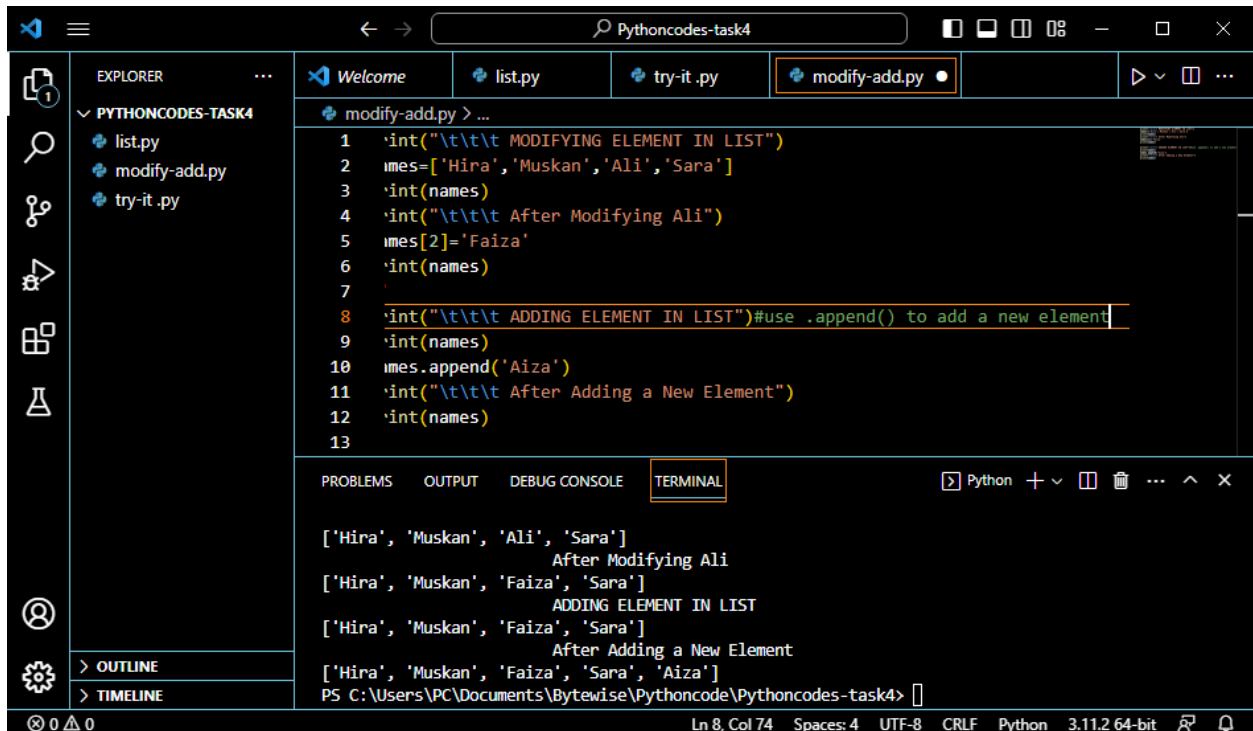
- TRY IT YOURSELF 1 SOLUTION



```
1 print("\t\t\tTry It Yourself 3-1")
2 friends_names=['asleub','mida','ayusha','maryam','moun']
3 print("First Element: ",friends_names[0].title())
4 print("Second Element: ",friends_names[1].title())
5 print("Third Element: ",friends_names[2].title())
6 print("Fourth Element: ",friends_names[3].title())
7 print("Fifth Element: ",friends_names[4].title())
8
9 print("\t\t\tTry It Yourself 3-3")
10 message='Hi ' +friends_names[0].title() + '! How are you?'
11 print(message)
12 message='Hi ' +friends_names[1].title() + '! How are you?'
13 print(message)
14 message='Hi ' +friends_names[2].title() + '! How are you?'
15 print(message)
16 message='Hi ' +friends_names[3].title() + '! How are you?'
17 print(message)
18 message='Hi ' +friends_names[4].title() + '! How are you?'
19 print(message)
20
21 print("\t\t\tTry It Yourself 3-3")
22 train=['Golden Arrow','Blue Train','Bullet Train','TGV','Orient Express']
23 message='I would like to take '+ train[2]
24 print (message)
25 message=train[0]+' is the fastest train in world'
26 print(message)
27 message= train[-1] +' is a great public carrier '
28 print(message)
29 message=train[-2] +' stands for Train à grande vitesse'
30 print(message)
31 print("\t\t\tTry It Yourself 3 Completed")
32
```

Changing, Adding and Removing Elements

- Modifying and Adding Element



```
1 print("\t\t\tMODIFYING ELEMENT IN LIST")
2 names=['Hira','Muskan','Ali','Sara']
3 print(names)
4 print("\t\t\tAfter Modifying Ali")
5 names[2]='Faiza'
6 print(names)
7
8 print("\t\t\tADDING ELEMENT IN LIST")#use .append() to add a new element
9 print(names)
10 names.append('Aiza')
11 print("\t\t\tAfter Adding a New Element")
12 print(names)
13
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
['Hira', 'Muskan', 'Ali', 'Sara']
After Modifying Ali
['Hira', 'Muskan', 'Faiza', 'Sara']
ADDING ELEMENT IN LIST
['Hira', 'Muskan', 'Faiza', 'Sara']
After Adding a New Element
['Hira', 'Muskan', 'Faiza', 'Sara', 'Aiza']
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

- Inserting and Deleting Elements

```

1 print("\n\nINSERTING ELEMENTS IN LIST\n")
2 program=['Javascript','C/C++']
3 program.insert(0, 'Python')
4 program.insert(2, 'HTML')
5 program.insert(3, 'Java')
6 program.insert(4, 'CSS')
7 print(program)
8
9 print("\n\nDELETING ELEMENT FROM LIST USING del METHOD\n")
10 print(program)
11 del program[1]
12 del program[-1]
13 print("\n\nAfter Deleting Elements from list\n")
14 print(program)
15
16 print("\n\nDELETING ELEMENT FROM LIST USING pop() METHOD\n")
17 print(program)
18 print("\n\nAfter Deleting Elements from list\n")
19 program.pop()
20 program.pop(-2)
21 print(program)
22 message= "I am learning "+ program.pop(0)
23 print(message)
24
25 print("\n\nREMOVING ITEM BY VALUE\n")
26 program.insert(1, 'C#')
27 print(program)
28 program.remove('C#')
29 print(program)
30 a="Python"
31 print("I am learning "+ a)
32

```

```

ms/Python/Python311/python.exe c:/Users/PC/Documents/Bytewise/Pythoncode/Pythoncodes-task4/insert-del.py

INSERTING ELEMENTS IN LIST

['Python', 'Java', 'Javascript', 'HTML', 'CSS', 'C/C++']

DELETING ELEMENT FROM LIST USING del METHOD

['Python', 'Java', 'Javascript', 'HTML', 'CSS', 'C/C++']

After Deleting Elements from list

['Python', 'Javascript', 'HTML', 'CSS']

DELETING ELEMENT FROM LIST USING pop() METHOD

['Python', 'Javascript', 'HTML', 'CSS']

After Deleting Elements from list

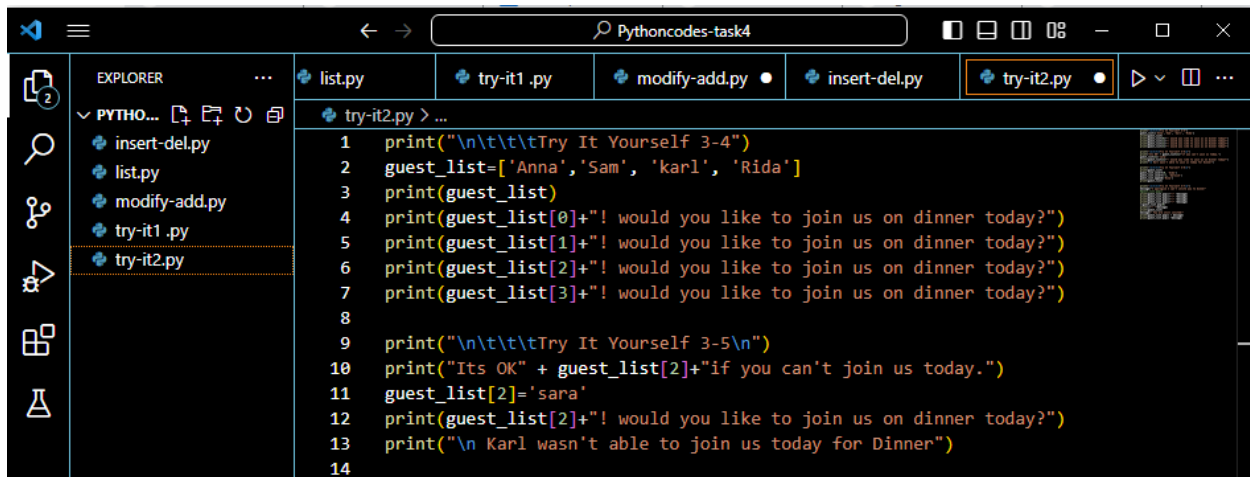
['Python', 'HTML']
I am learning Python

REMOVING ITEM BY VALUE

['HTML', 'C#']
['HTML']
I am learning Python
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>

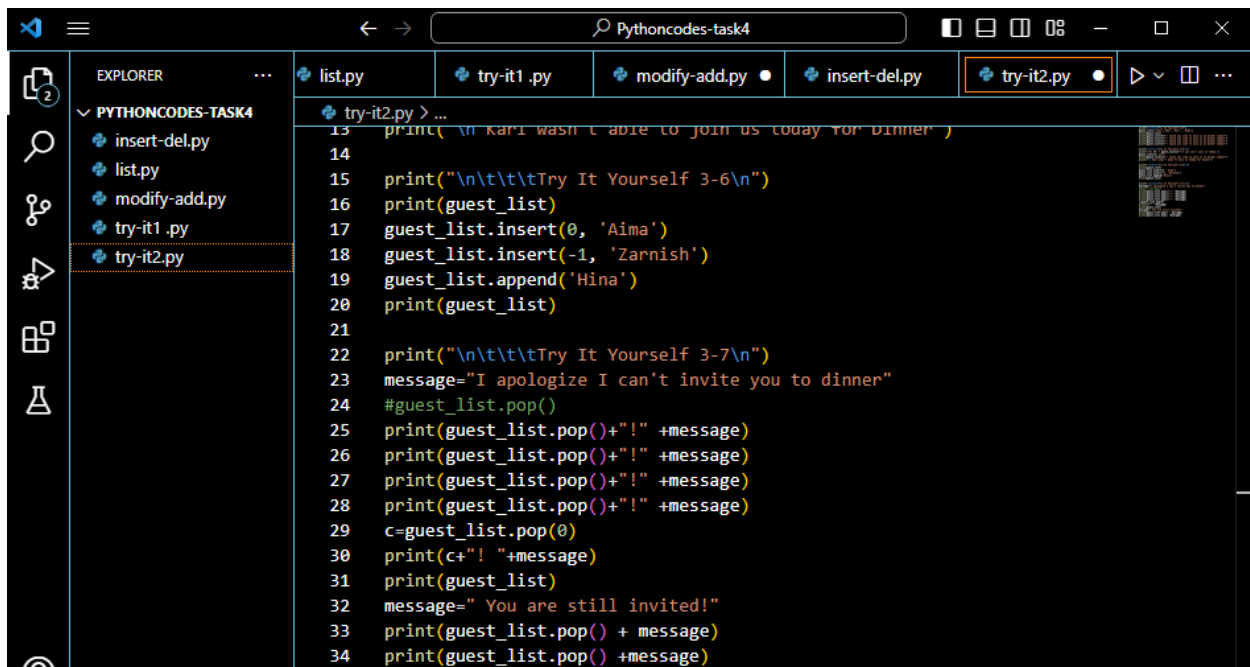
```

• TRY IT YOURSELF 2 SOLUTION



The screenshot shows the Visual Studio Code editor with the file explorer on the left. The file explorer shows a folder named 'PYTHONCODES-TASK4' containing several Python files: 'insert-del.py', 'list.py', 'modify-add.py', 'try-it1.py', and 'try-it2.py'. The 'try-it2.py' file is selected and open in the editor. The code in the editor is as follows:

```
1 print("\n\t\t\tTry It Yourself 3-4")
2 guest_list=['Anna','Sam', 'karl', 'Rida']
3 print(guest_list)
4 print(guest_list[0]+"! would you like to join us on dinner today?")
5 print(guest_list[1]+"! would you like to join us on dinner today?")
6 print(guest_list[2]+"! would you like to join us on dinner today?")
7 print(guest_list[3]+"! would you like to join us on dinner today?")
8
9 print("\n\t\t\tTry It Yourself 3-5\n")
10 print("Its OK" + guest_list[2]+"if you can't join us today.")
11 guest_list[2]='sara'
12 print(guest_list[2]+"! would you like to join us on dinner today?")
13 print("\n Karl wasn't able to join us today for Dinner")
14
```



The screenshot shows the Visual Studio Code editor with the file explorer on the left. The file explorer shows a folder named 'PYTHONCODES-TASK4' containing several Python files: 'insert-del.py', 'list.py', 'modify-add.py', 'try-it1.py', and 'try-it2.py'. The 'try-it2.py' file is selected and open in the editor. The code in the editor is as follows:

```
15 print("\n Karl wasn't able to join us today for Dinner")
14
15 print("\n\t\t\tTry It Yourself 3-6\n")
16 print(guest_list)
17 guest_list.insert(0, 'Aima')
18 guest_list.insert(-1, 'Zarnish')
19 guest_list.append('Hina')
20 print(guest_list)
21
22 print("\n\t\t\tTry It Yourself 3-7\n")
23 message="I apologize I can't invite you to dinner"
24 #guest_list.pop()
25 print(guest_list.pop()+"!" +message)
26 print(guest_list.pop()+"!" +message)
27 print(guest_list.pop()+"!" +message)
28 print(guest_list.pop()+"!" +message)
29 c=guest_list.pop(0)
30 print(c+"!" +message)
31 print(guest_list)
32 message=" You are still invited!"
33 print(guest_list.pop() + message)
34 print(guest_list.pop() +message)
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Try It Yourself 3-4
['Anna', 'Sam', 'karl', 'Rida']
Anna! would you like to join us on dinner today?
Sam! would you like to join us on dinner today?
karl! would you like to join us on dinner today?
Rida! would you like to join us on dinner today?

Try It Yourself 3-5

Its Okkar!If you can't join us today,
sara! would you like to join us on dinner today?

Karl wasn't able to join us today for Dinner

Try It Yourself 3-6

['Anna', 'Sam', 'sara', 'Rida']
['Aima', 'Anna', 'Sam', 'sara', 'Zarnish', 'Rida', 'Hina']

Try It Yourself 3-7

Hina! I apologize I can't invite you to dinner
Rida! I apologize I can't invite you to dinner
Zarnish! I apologize I can't invite you to dinner
sara! I apologize I can't invite you to dinner
Aima! I apologize I can't invite you to dinner
['Anna', 'Sam']
Sam You are still invited!
Anna You are still invited!
PS C:\Users\PC\Documents\ByteWise\Pythoncode\Pythoncodes-task4>
```

Organizing In List

- Permanent & Temporary Sorting – Length of list

```
Pythoncodes-task4
Welcome list.py Per-Temp.py try-it1.py modify-add.py
EXPLORER PYTHONCODES-TASK4
  insert-del.py
  list.py
  modify-add.py
  Per-Temp.py
  try-it1.py
  try-it2.py
  OUTLINE
  TIMELINE
1 print("\n\t\t\t Permanently Sorting\n")
2 cars = ['bmw', 'audi', 'toyota', 'subaru']
3 cars.sort()
4 print(cars)
5 print("\n\t\t\t Printing above list in Reverse Order\n")
6 cars.sort(reverse=True)
7 print(cars)
8
9 print("\n\t\t\t Temporary Sorting\n")
10 cars = ['bmw', 'audi', 'toyota', 'subaru']
11 print("\nHere is the original list:")
12 print(cars)
13 print("\nHere is the sorted list:")
14 print(sorted(cars))
15 print("\nHere is the original list again:")
16 print(cars)
17
18 print("\n\t\t\t Printing List in Reverse Order\n")
19 cars.reverse()
20 print(cars)
21
22 print("\n\t\t\t Finding Length of List\n")
23 print(len(cars))
24
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Permanently Sorting
['audi', 'bmw', 'subaru', 'toyota']

Printing above list in Reverse Order
['toyota', 'subaru', 'bmw', 'audi']

Temporary Sorting

Here is the original list:
['bmw', 'audi', 'toyota', 'subaru']

Here is the sorted list:
['audi', 'bmw', 'subaru', 'toyota']

Here is the original list again:
['bmw', 'audi', 'toyota', 'subaru']

Printing List in Reverse Order
['subaru', 'toyota', 'audi', 'bmw']

Finding Length of List

4
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

• TRY IT YOURSELF 3 SOLUTION

```
Pythoncodes-task4

EXPLORER
PYTHONCODES-TASK4
  insert-del.py
  list.py
  modify-add.py
  Per-Temp.py
  try-it1.py
  try-it2.py
  try-it3.py

try-it3.py > ...
1 print("\t\t\tTry It Yourself 3-8")
2 loc=['Germany','Switzerland','America','turkey','Canada']
3 print("\n Original Order")
4 print(loc)
5 print("\n Sorted list")
6 st=sorted(loc)
7 print(st)
8 print("\n Original Order")
9 print(loc)
10 print("\n Reversing List")
11 print(loc.sort(reverse=True))
12 print(loc.reverse())
13 print("\n Original Order")
14 print(loc)
15 print("\n Using Sort")
16 print(loc.sort())
17
18 print("\t\t\tTry It Yourself 3-9")
19 guest_list=['Anna','Sam', 'karl', 'Rida']
20 print("\n Printing Length")
21 print(len(guest_list))
22

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Try It Yourself 3-10
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

The screenshot shows the VS Code interface with the Explorer pane on the left displaying a project named 'PYTHONCODES-TASK4'. The file 'try-it3.py' is selected. The Terminal pane on the right shows the output of running the script. The first part of the output shows a `NameError: name 'sort' is not defined. Did you mean: 'sorted'?` followed by the command `PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4> & C:/Users/PC/AppData/Local/Programs/Python/Python311/python.exe c:/Users/PC/Documents/Bytewise/Pythoncode/Pythoncodes-task4/try-it3.py`. The rest of the output shows the execution of a program that manipulates a list of countries: Germany, Switzerland, America, turkey, Canada. It shows the original order, a sorted list (America, Canada, Germany, Switzerland, turkey), and the original order again. It also shows reversing the list (None) and printing the length (4). The command prompt shows the current directory is `PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>`.

```
NameError: name 'sort' is not defined. Did you mean: 'sorted'?
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4> & C:/Users/PC/AppData/Local/Programs/Python/Python311/python.exe c:/Users/PC/Documents/Bytewise/Pythoncode/Pythoncodes-task4/try-it3.py

Try It Yourself 3-8

Original Order
['Germany', 'Switzerland', 'America', 'turkey', 'Canada']

Sorted list
['America', 'Canada', 'Germany', 'Switzerland', 'turkey']

Original Order
['Germany', 'Switzerland', 'America', 'turkey', 'Canada']

Reversing List
None
None

Original Order
['America', 'Canada', 'Germany', 'Switzerland', 'turkey']

Using Sort
['America', 'Canada', 'Germany', 'Switzerland', 'turkey']
Try It Yourself 3-9

Printing Length
4
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

Loops

- For Loop and Indentation Error

The screenshot shows the VS Code interface with the Explorer pane on the left displaying a project named 'PYTHONCODES-TASK4'. The file 'loops.py' is selected. The Terminal pane on the right shows the output of running the script. The first part of the output shows the command `PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4> python loops.py`. The rest of the output shows the execution of a program that prints the names of guests in a list: Anna, Sam, Karl, Rida. It also shows a for loop that prints the names of guests in a list: Anna, Sam, Karl, Rida. The command prompt shows the current directory is `PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>`.

```
1 print("\n\t\tUsing For Loop")
2 guest= ['Anna','Sam', 'karl', 'Rida']
3 for guest in guest:
4     print(guest)
5
6 for a in guest:
7     print(guest)
8
9 print("\n\t\tIndentationg on purpose to check Error")
10 for guest in guest :
11     print(guest)
12
```

```
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4> python loops.py
File "c:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4\loops.py", line 10
    for guest in guest :
        print(guest)
IndentationError: unexpected indent
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```


The screenshot shows the Visual Studio Code editor interface. The Explorer panel on the left displays a project named 'PYTHONCODES-TASK4' with several Python files. The file 'loops.py' is selected and open in the editor. The code in 'loops.py' is as follows:

```
1 print("\n\t\tUsing For Loop")
2 guest= ['Anna','Sam', 'karl', 'Rida']
3 for guest in guest:
4     print(guest)
5
6
```

The output window at the bottom shows the execution of the script, displaying the names of the guests in a tabular format:

```
Using For Loop
Anna
Sam
karl
Rida
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

• TRY IT YOURSELF 4

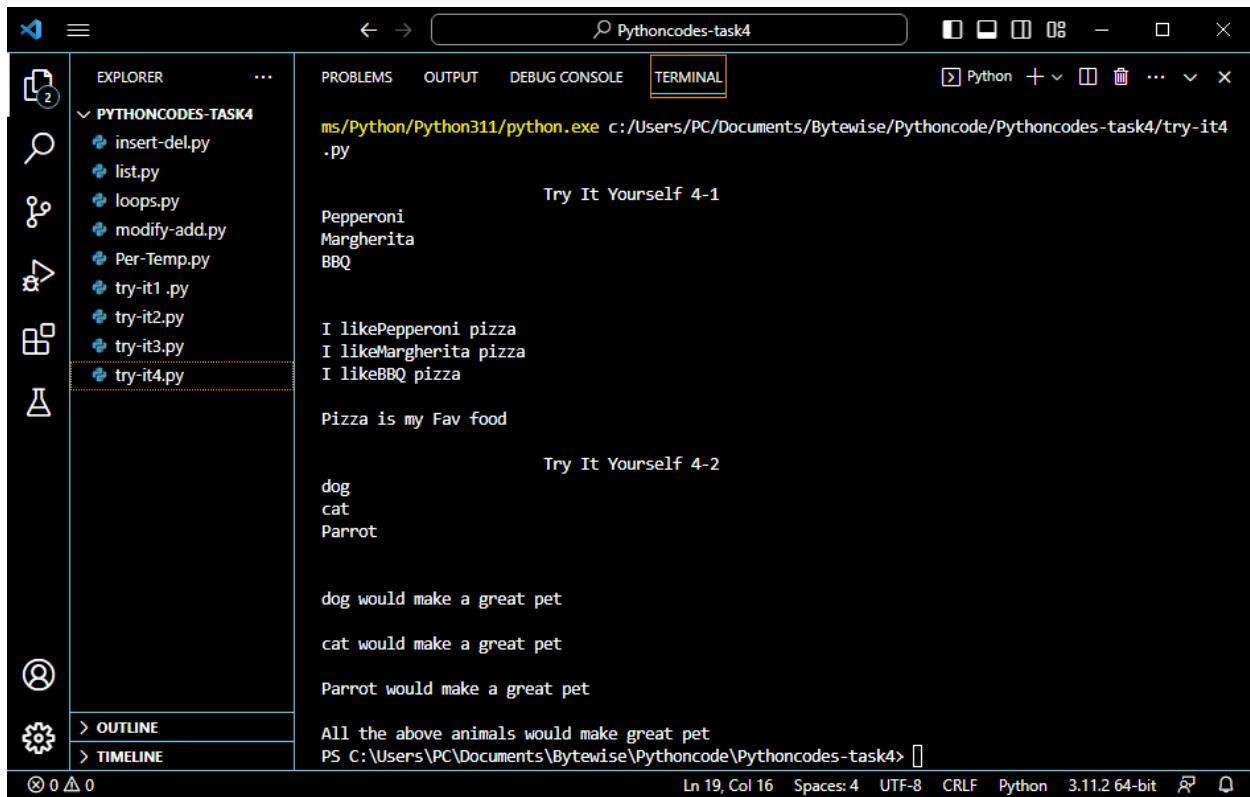
The screenshot shows the Visual Studio Code editor interface. The Explorer panel on the left displays a project named 'PYTHONCODES-TASK4' with several Python files. The file 'try-it4.py' is selected and open in the editor. The code in 'try-it4.py' is as follows:

```
1 print("\n\t\tTry It Yourself 4-1")
2 fav_pizzas = ["Pepperoni", "Margherita", "BBQ"]
3 for pizza in fav_pizzas:
4     print(pizza)
5
6 print("\n")
7
8 for pizza in fav_pizzas:
9     print("I like"+ pizza+" pizza")
10 print("\nPizza is my Fav food")
11
12 print("\n\t\tTry It Yourself 4-2")
13
14 animals=['dog','cat','Parrot']
15 for aml in animals:
16     print(aml)
17 print("\n")
18
19 for aml in animals:
20     print(aml+ " would make a great pet\n")
21
22 print("All the above animals would make great pet")
23
```

The output window at the bottom shows the execution of the script, displaying the names of the pizzas and animals in a tabular format:

```
Try It Yourself 4-1
Pepperoni
Margherita
BBQ

Try It Yourself 4-2
dog
cat
Parrot
dog would make a great pet
cat would make a great pet
Parrot would make a great pet
All the above animals would make great pet
```



```
ms/Python/Python311/python.exe c:/Users/PC/Documents/Bytewise/Pythoncode/Pythoncodes-task4/try-it4.py

Try It Yourself 4-1

Pepperoni
Margherita
BBQ

I likePepperoni pizza
I likeMargherita pizza
I likeBBQ pizza

Pizza is my Fav food

Try It Yourself 4-2

dog
cat
Parrot

dog would make a great pet

cat would make a great pet

Parrot would make a great pet

All the above animals would make great pet
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

Numerical List

- **Range(), min(), max(), sum() Function**



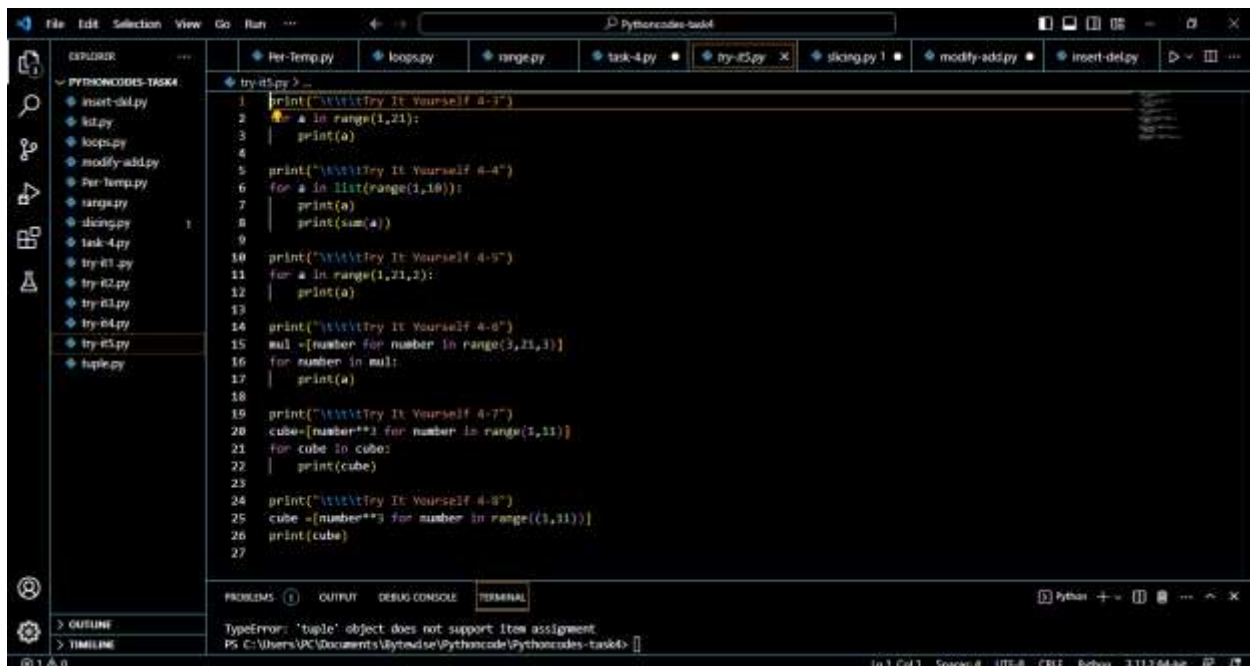
The screenshot shows the Visual Studio Code editor with a file named `range.py` open. The code in the editor is as follows:

```
1 for a in range(0,5):
2     print(a)
3     a= list(range(1,6))
4     print (a)
5
6     print(min(a))
7     print(max(a))
8     print(sum(a))
9
10
```

The terminal output shows the execution of the script:

```
ms\Python\Python311\python.exe c:/Users/PC/Documents/Bytewise/Pythoncode/Pythoncodes-task4/range.p
y
0
1
2
3
4
[1, 2, 3, 4, 5]
1
15
P5 C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

TRY IT YOURSELF 5



The screenshot shows the Visual Studio Code editor with a file named `try-it5.py` open. The code in the editor is as follows:

```
1 print("\t\t\t\t\tTry It Yourself 4-1")
2 for a in range(1,21):
3     print(a)
4
5 print("\t\t\t\t\tTry It Yourself 4-4")
6 for a in list(range(1,10)):
7     print(a)
8     print(sum(a))
9
10 print("\t\t\t\t\tTry It Yourself 4-5")
11 for a in range(1,21,2):
12     print(a)
13
14 print("\t\t\t\t\tTry It Yourself 4-6")
15 mul =[number for number in range(3,21,3)]
16 for number in mul:
17     print(a)
18
19 print("\t\t\t\t\tTry It Yourself 4-7")
20 cube=[number**3 for number in range(1,11)]
21 for cube in cube:
22     print(cube)
23
24 print("\t\t\t\t\tTry It Yourself 4-8")
25 cube =(number**3 for number in range((1,11)))
26 print(cube)
27
```

The terminal output shows a `TypeError` message:

```
TypeError: 'tuple' object does not support item assignment
P5 C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4>
```

- Tuples

The screenshot shows a Python IDE with a dark theme. The Explorer panel on the left lists files under 'PYTHONCODES-TASK4', including 'tuple.py'. The main editor window displays the code in 'tuple.py':

```
1 menu = ('rice', 'chicken', 'salad', 'bread', 'tea')
2 for food in menu:
3     print(food)
4 menu = ('chowmin', 'beef', 'salad', 'garlic bread', 'soup')
5 for food in menu:
6     print(food)
7 menu[0] = 'pasta'
8 for food in menu:
9     print(food)
10
```

The bottom panel shows the 'TERMINAL' output:

```
PS C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4> & C:/Users/PC/AppData/Local/Programs/Python/Python311/Python.exe C:/Users/PC/AppData/Local/Programs/Python/Python311/Python.exe C:\Users\PC\Documents\Bytewise\Pythoncode\Pythoncodes-task4\tuple.py
rice
chicken
salad
```

The status bar at the bottom indicates 'Ln 10, Col 5', 'Spaces: 4', 'UTF-8', 'CRLF', 'Python', and '3.11.2 64-bit'.