RIPHAH INTERNATIONAL UNIVERSITY, ISLAMABAD

Lab#6

Bachelors of Computer Science – 6th Semester

Course: Artificial Intelligence

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Task 1:

Consider 2-d array and Convert all the elements of a numpy array from float to Bool datatype.

```python
import numpy as np

arr_float = np.array([[1.0, 2.5], [3.7, 4.2]])

arr_bool = arr_float.astype(bool)

print("Original array (float):")
print(arr_float)

print("\nArray after conversion to bool:")
print(arr_bool)
```

```
Original array (float):
[[1.  2.5]
 [3.7 4.2]]

Array after conversion to bool:
[[ True  True]
 [ True  True]]
```

Task2:
Write a Python program that uses insert function to add an element to a specific position in a array.

- add the element 55 at position 2.
- **Print the updated array after the insertion.**

```python
import numpy as np

arr = np.array([1, 2, 3, 4, 5])

position = 2
element = 55
arr = np.insert(arr, position, element)

print("Updated array after insertion:")
print(arr)
```

```
"C:\Users\FAROOQ HASSAN\AppData\Loca
Updated array after insertion:
[ 1  2 55  3  4  5]
```

Task3:

Generate a sequence of numbers in the form of a numpy array from 0 to 100 with gaps of 2 numbers, for example: 0, 2, 4

```python
import numpy as np

arr = np.arange(0, 101, 2)

print("Sequence of numbers with gaps of 2:")
print(arr)
```

```
"C:\Users\FAROOQ HASSAN\AppData\Local\Microsoft\WindowsApps\python3.10.exe" D:
Sequence of numbers with gaps of 2:
[  0   2   4   6   8  10  12  14  16  18  20  22  24  26  28  30  32  34
  36  38  40  42  44  46  48  50  52  54  56  58  60  62  64  66  68  70
  72  74  76  78  80  82  84  86  88  90  92  94  96  98 100]
```

Task 4:

Given 2 numpy arrays as matrices, output the result of multiplying the 2 matrices as a numpy array

```python
import numpy as np

mat1 = np.array([[1, 2], [3, 4]])
mat2 = np.array([[5, 6], [7, 8]])

result = np.dot(mat1, mat2)

print("Result of matrix multiplication:")
print(result)
```

```
"C:\Users\FAROOQ HASSAN\AppData\Loca
Result of matrix multiplication:
[[19 22]
 [43 50]]
```

Task5:

Consider a 1-d array and check whether the specific number is present or not?

```python
import numpy as np

arr = np.array([1, 3, 5, 7, 9])

number_to_check = 5
is_present = number_to_check in arr

if is_present:
    print(f"{number_to_check} is present in the array.")
else:
    print(f"{number_to_check} is not present in the array.")
```

```
"C:\Users\FAROOQ HASSAN\AppData\L
5 is present in the array.
```