Course	**Introduction to AI (AI 102)**
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Sheet 4: Functions and Dictionaries

Dictionary in python

- Dictionary items are presented in key:value pairs, and can be referred to by using the key name.
- Dictionary items are ordered, changeable, and does not allow duplicates.

Dictionary syntax:

- ```
  thisdict =
  {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964
  }
  print(thisdict)
  ```

Key → "brand" : "Ford" ← Value

- ```
  thisdict =
  {
    "brand": "Ford",
    "electric": False,
    "year": 1964,
    "colors": ["red", "white", "blue"]
  }
  ```

- ```
  thisdict =
  {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964,
    "year": 2020
  }
  print(thisdict)
  ```

Duplicates not allowed
So, the duplicate values will overwrite existing values
  ```

- ```
  thisdict =
  {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964
  }
  x = thisdict["model"]
  ```

- ```
  thisdict =
  {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964
  }
  thisdict.update({"year": 2020})
  ```

Dictionary built in functions:

- clear() Removes all the elements from the dictionary.
- copy() Returns a copy of the dictionary.
- get() Returns the value of the specified key.
- items() Returns a list containing a tuple for each key value pair.
- keys() Returns a list containing the dictionary's keys.
- pop() Removes the element with the specified key
- popitem() Removes the last inserted key-value pair
- setdefault() Returns the value of the specified key. If the key does not exist insert the key, with the specified value
- update() Updates the dictionary with the specified key-value pairs
- values() Returns a list of all the values in the dictionary

1. Write a program using function that displays all numbers from 1 to y that are divisible by x, where x and y are entered by the user:

   Example:
   If x = 3 and y = 30, the output is 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

2. Write a program using function to check if the number that entered by the user is prime or not.

   Example Input:
   num = 407
   Example Output:
   407 is not a prime number

3. Write a program using function that helps us calculate and print out the total amount to be paid at a restaurant. Given a bill_amount and the percentage of the bill_amount, you to choose to pay as tip(tip_perc), this function calculates the total amount that you should pay.

4. Write a program using function that takes a list and returns a new list with unique elements of the first list.