

# Assignment 2

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## Objective

This assignment is based on unit 4 and unit 5 study material. The problems of this assignment are designed to impute students to think how to solve a problem iteratively and recursively, how to traverse through the elements of a dictionary and apply DateTime package.

Last two questions are designed to give students a hands-on experience of data analysis using numPy and Pandas.

## Problems

1. Given a decimal integer number, write a function which converts this number into its binary form. Use iteration to solve this problem. E.g., myIntNumber=5 result should be 0101.
2. Given an array representing binary form of a decimal integer number. Convert this into corresponding decimal number, e.g., [1,0,0,1] to 9.
3. We have a dictionary. Key of this dictionary is medicine name and values is expiry date. Write a function which takes this dictionary as an input and print a list of all those medicine which has expired.

```
myMedDict={
    "Abelcet":"Aug 1 2016",
    "Azithromycin":"Dec 24 2016",
    "Arava":"Jan 1 2019",
    "Arixtra":"May 31 2022",
    "Aplenzin":"Jan 3 2020",
    "Antizol":"Aug 31 2023",
    "Anadrol-50":"Nov 14 2010"
}
```

4. Write a recursive algorithm to convert a decimal integer number into its binary form, e.g., myInt=9 to 1001.
5. You have been given a file "crimeData.csv", containing address and number of times a crime has happened at that address. Your task is to write a function which takes a crime name as an input and calculates the mean of that crime, i.e., average number of times that crime has happened at addresses. The function should return all the address (may be in a list) where this crime has occurred more than the mean number of times.

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6. You have been given a file "timeData2.csv". This file contains date along with the time at which crimes has happened. Your task is to write a function which takes a time interval and tells you which category of crime has occurred the most in that time interval. The time interval can be taken as two separate parameter fromTime and toTime .

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