1. Read the attached file for Arabic numerals to Roman Numerals mapping:
    a) Summarized the rule from Roman Numerals to Arabic Numerals
    b) Using any coding language or Pseudocode, to write a converter from Roman Numerals to Arabic Numerals and vice versa, the code should have :
        i. Avoid illegal inputs with error message.
        ii. For legal inputs, should output with corresponding result.
    c) If you learned any course about Automata Machine / Compilers: Principles, Techniques, and Tools, then please give Roman Numerals formal description.

2. Use below time series data, try to find a best buy and sell point which get maximum profit. （Note: Buy should always happened before Sell）

Date	Price
3/1/2020	58.89284407
3/2/2020	95.94458507
3/3/2020	96.45912158
3/4/2020	16.2590402
3/5/2020	43.0972276
3/6/2020	31.11100805
3/7/2020	85.13620353
3/8/2020	20.76988058
3/9/2020	80.45273913
3/10/2020	29.08843103
3/11/2020	78.58577725
3/12/2020	89.05731583
3/13/2020	12.2478028
3/14/2020	13.65039261
3/15/2020	40.12335715
3/16/2020	1.750565892
3/17/2020	25.34774775
3/18/2020	36.50892091
3/19/2020	15.03065618
3/20/2020	6.547878763
3/21/2020	85.95000028
3/22/2020	98.07729935
3/23/2020	65.0573294
3/24/2020	32.31222639
3/25/2020	48.43739129
3/26/2020	78.42363197
3/27/2020	91.27971806
3/28/2020	8.699684692
3/29/2020	61.01249881
3/30/2020	32.90431005

3/31/2020	43.32890305
4/1/2020	99.81022739
4/2/2020	88.25486428
4/3/2020	7.965390377
4/4/2020	89.9666122
4/5/2020	0.305768571
4/6/2020	36.37551171
4/7/2020	56.20280164
4/8/2020	52.24266918
4/9/2020	32.74005732
4/10/2020	82.98849199
4/11/2020	4.219436068
…….	…….

3. Write a SQL Query with below 2 table(Portfolio, PortfolioValue), which returns latest values of each portfolio with given date.

   Note: if there is no value of given date, return most recent value.

Portfolio:

ID,	Name,
1,	Equity
2,	Credit
3,	FX
…..	
…..	

PortfolioValue:

PortfolioID,	Date,	Value
1 ,	2018-3-20,	100
2 ,	2019-4-10,	500
3 ,	2017-7-10,	102
1 ,	2018-4-2,	105
………..		