Assignment 1

Ex1 (easy): Given a positive integer *n*, find all integer having 4 digits which is divisible by n.

- **Input**: a positive integer *n* ($1 \leq n \leq 9999$)
- **Output:** Write the sequence of numbers found (elements are separated by a SPACE character)

Example

Input	Output
2000	2000 4000 6000 8000

Ex2 (easy): Given an integer *n*, write a program that generates all the binary sequences of length *n* in a lexicographic order.

- **Input:** an integer n ($1 \leq n \leq 20$)
- **Output:** Write binary sequences in a lexicographic order, each sequence in a line

Example

Input	Output
3	000 001 010 011 100 101 110 111

Ex3 (medium): Given a document *T* and two strings *P1*, *P2* (both having no enter character and no more 1000 character). Let replace all strings *P1* in *T* by the string *P2*.

- **Input:** includs 3 lines:
  - Line 1**:** string *P1*
  - Line 2: string *P2*
  - Line 3: document *T*
- **Output:** Document T after the replacement

Example

Input	Output
AI Artificial Intelligence Recently, AI is a key technology. AI enable efficient operations in many fields.	Recently, Artificial Intelligence is a key technology. Artificial Intelligence enable efficient operations in many fields.

Ex4 (medium): Data about sales in an e-commerce company (the e-commerce company has several shops) consists a sequence of lines, each line (represents an order) has the following information:

<CustomerID> <ProductID> <Price> <ShopID> <TimePoint>

in which the customer <CustomerID> buys a product <ProductID> with price <Price> at the shop <ShopID> at the time-point <TimePoint>

- <CustomerID>: string of length from 3 to 10
- <ProductID>: string of length from 3 to 10
- <Price>: a positive integer from 1 to 1000
- <ShopID>: string of length from 3 to 10
- <TimePoint>: string representing time-point with the format HH:MM:SS (for example, 09:45:20 means the time-point 9 hour 45 minutes 20 seconds)

Perform following tasks:

1. Sort orders in decreasing order of <TimePoint>
2. Provide the best-seller Product ID which is sold most and its sold quatity as well as shop sold this product most. In case of same quantity, which shop has higher total price is selected.
3. Provide the loyal customer who purchased most,

Example:

Input	Output - Task 1
C001 P001 10 SHOP001 10:30:10 C001 P002 30 SHOP001 12:30:10 C003 P001 40 SHOP002 10:15:20 C001 P001 80 SHOP002 08:40:10	C001 P002 30 SHOP001 12:30:10 C002 P001 160 SHOP003 11:30:20 C001 P001 10 SHOP001 10:30:10 C002 P001 130 SHOP001 10:30:10

C002 P001 130 SHOP001 10:30:10 C002 P001 160 SHOP003 11:30:20	C003 P001 40 SHOP002 10:15:20 C001 P001 80 SHOP002 08:40:10

Input	Output - Task 2
C001 P001 10 SHOP001 10:30:10 C001 P002 30 SHOP001 12:30:10 C003 P001 40 SHOP002 10:15:20 C001 P001 80 SHOP002 08:40:10 C002 P001 130 SHOP001 10:30:10 C002 P001 160 SHOP003 11:30:20	**P001** **5** **SHOP001**

Input	Output - Task 3
C001 P001 10 SHOP001 10:30:10 C001 P002 30 SHOP001 12:30:10 C003 P001 40 SHOP002 10:15:20 C001 P001 80 SHOP002 08:40:10 C002 P001 130 SHOP001 10:30:10 C002 P001 160 SHOP003 11:30:20	**C002**