

Python Programming Exercise

Below is the programming task we would like you complete.

Your task is to write some code/script to analyze a report that we get from our partners that lists various events that happen to units (e.g. phones).

An example file looks like:

```
SHIP 123456789012347 ABC
    123 screen
    124 power
RECV 123456789012347 XYZ
    27 camera
```

The format for each record is:

```
<EVENT> <IMEI> <SKU>
<FAULT_CODE> <FAULT_DESCRIPTION>
```

The 'EVENT' is either 'SHIP' or 'RECV'. (NOTE: SHIP = SEND)

SHIP means that the partner shipped the unit out of their warehouse

RECV means that the partner received the unit into their warehouse.

- 'IMEI' is a unique identifier for the device

see: https://en.wikipedia.org/wiki/International_Mobile_Equipment_Identity for more information.

There should be a 15-digit IMEI and have a valid check digit (see check digit computation).

Records with invalid IMEIs should be reported, but otherwise ignored.

- 'SKU' is a stock-keeping unit that identifies the make/model of the unit.

See https://en.wikipedia.org/wiki/Stock_keeping_unit

- 'FAULT CODE' is an integer code describing the fault the device has.

- 'FAULT DESCRIPTION' is a string description the fault.

1. Write a Python script that will take an input file and is able to parse the input file and report on the following:

- a. Total number of devices that are currently at the partner, by SKU.

You can assume the events in the file represent all events that have ever occurred.

E.g.:

Inventory:

ABC 1

XYZ 50

- b. A list of invalid records that are in the file including:
 1. why they are invalid.
 2. the record index.

- E.g.: Invalid records: 5 Invalid IMEI, 10 Invalid event
- c. We don't know what the mapping from 'FAULT CODE' to 'FAULT

DESCRIPTION' is in advance.

Output what the mapping is.

E.g.:

Fault code mapping:

123 screen

124 power

27 camera

The script can use any Python standard library.

2. Design an SQL schema to store the data (i.e.: write the 'CREATE TABLE' DDL commands).

Please send this back to us when you have time. I think you should allow a couple of hours.