UNIVERSITY OF THE WEST INDIES
Department of Computing
COMP1127 – Introduction to Computing II
Lab 3

Access and Complete the following Lab Exercise on Hackerrank.

Opening Date: **Friday, November 4, 2022**

Lab Date (Week 3): **Monday, November 7 – Saturday, November 12, 2022**
Due Date: **11:45 pm, Sunday, November 13, 2022 (on Hackerrank)**

The Bookshop sells a variety of books, by a number of authors. The data kept on a particular book is listed below:

- ISBN - is a unique 13 digit commercial book identifier.
- Title - the name of the book.
- Author - the names of the persons who wrote the book.
- Genre - the type of book e.g. fiction, children, computer science text.
- Year of Publication - the year the title was printed.
- Quantity in Stock - the total number of copies of the title The Bookshop has available.
- Sale Price - the price at which the title is offered to a customer.

The functions listed below create a book and a bookshop; they are already included in the hackerrank program. In the file an instance of `uwi_bookshop` is created and 3 books are added to the bookshop.

```
def makebook(isbn,title,authors,genre,year,qtystck,saleprice):
    """constructor - creates a book"""
    return [isbn,title,authors,genre,year,qtystck,saleprice]

def bookshop():
    """constructor- creates a new bookshop"""
    return ("bookshop",[])

def books(bookshop):
    """accessor - returns all books of a bookshop"""
    return bookshop[1]

def add_book(book,bookshop):
    """constructor - adds a book to the bookshop"""
    return bookshop[1].append(book)


# example books
b1=  makebook("9780262510875","Struc.  &  Interp  of  Comp.
Prog.",["Abelson  H.","Sussman  G.","Sussman  J."],"CS  text",
1996,12, 7340.00)
b2=  makebook("0216874068000","Algebra  &  No.  Sys",["Hunter
J."],"Math text", 1985,30,1040.00)
b3=  makebook("9780521644082","Haskell  School  of  Expr.",["Hudak
P."],"CS text", 2000,1,3455.00)
```

```
# code to create a uwi_bookshop
uwi_bookshop=bookshop()
add_book(b1,uwi_bookshop)
add_book(b2,uwi_bookshop)
add_book(b3,uwi_bookshop)
```

Problem 1

Write the following accessor functions in python which take a book as input and return the corresponding attribute of a book.

- `get_isbn(book)` – returns the isbn of the given book
- `get_title(book)` – returns the title of the given book
- `get_authors(book)` – returns the list of authors of the given book
- `get_genre(book)` – returns the genre of the given book
- `get_year(book)` – returns the year the given book was published
- `get_qty(book)` – returns the number of copies of the given book
- `get_saleprice(book)` – returns the price of the given book

Problem 2

Write a function `co_authors` which takes a book as a parameter and returns the list of co-authors if the book is written by multiple authors, and returns an empty list if it is single authored. [Hint: make use of the function `len` to see if the book is authored by multiple persons.]

```
>>> co_authors(b1)
['Sussman G.', 'Sussman J.']
>>> co_authors(b2)
[ ]
```

Problem 3

Write a function `check_price` which takes a bookshop and an isbn and returns the corresponding sale price of the book. If the isbn does not exist return a message "Book not found".

[Use the accessor function to retrieve the isbn of the book in the bookshop]

```
>>> check_price(uwi_bookshop, "9780262510875")
7340.0
>>> check_price(uwi_bookshop, "978026251085")
Book not found
```

Problem 4

Write a function `books_to_reorder` which takes a bookshop and an integer representing reorder level. All books in the bookshop whose quantities are below or equal to this reorder are returned in a list. For each book that needs to be reordered only the isbn and the titles are added to the list as tuples.

```
>>> books_to_reorder(uwi_bookshop,15)
[('9780262510875', 'Struc. & Interp of Comp. Prog.'),
('9780521644082', 'Haskell School of Expr.')]
```