Question 1

Table 1 depicts a short catalog of video games along with their respective genres and prices.

Title	Genre	Price (USD)
Pokemon Sword	fantasy	59.99
Cooking Mama 2: Dinner with Friends	simulation	11.00
Overcooked! All You Can Eat	simulation	24.99
Tetris 99	arcade	0.00

Based on the given table, store the given information within a nested mixed list. Hence or otherwise, utilize appropriate program control statements to iterate through the list and display the titles of all games that

(a) cost more than USD 20.00

Sample Output:

```
Games worth more than USD 20.00:
Pokemon Sword
Overcooked! All You Can Eat
```

(b) are simulation games cheaper than USD 20.00

Sample Output:

```
Simulation games worth less than USD 20.00:
Cooking Mama 2: Dinner with Friends
```

Question 2

Implement a **Stack** data structure to collect up to 3 positive integer values from the user.

- When the user enters a number greater than 0, **PUSH** the number into the stack if the total number of integer values stored does not exceed 3; otherwise, prompt the appropriate error message as shown in the given sample output.
- When the user enters -1, **POP** a number from the stack if it is not empty; otherwise, prompt the appropriate error message as shown in the given sample output. Do not entertain any other negative number.
- When the user enters 0, quit the program.

Before each time you prompt the user to enter a number, print out the contents of the stack.

Sample Output:

```
Numbers in stack: []
Enter a number >> 5
Numbers in stack: [5]
Enter a number >> 9
Numbers in stack: [5, 9]
Enter a number >> 18
Numbers in stack: [5, 9, 18]
Enter a number >> 3
Stack is full, unable to add number 3
Enter a number >> -1
Numbers in stack >> [5, 9]
Enter a number >> -1
Numbers in stack >> [5]
Enter a number >> -1
Numbers in stack >> []
Enter a number >> -1
Stack is empty, unable to pop a number
Enter a number >> 0
0 entered, quitting program.
```

Question 3

The following line of Python code shows a series of contiguous integers in a list at a non-specific order.

```
int_list = [50, -4, 7, 61, 23]
```

(Part 1)

Describe the process detailing how one is able to search for a specific value from `int_list` using

(a) binary search

(b) sequential search

(Part 2)

What are the differences between these two searching algorithms?

(Part 3)

Suppose you are required to retrieve the product of all elements using a recursive function. Write a Python program which includes this function and any extra statement(s) to produce the following output:

```
The product of all numbers in the list is -1964200
```

(Part 4)

Suppose you are required to produce a specific string output utilizing all elements using a recursive function. Write a Python program which includes this function and any extra statement(s) to produce the following output:

```
50-476123
```