

In []:

```
1 # LibraryManager.py
2
3 # Dictionary to store book details with ISBN as the key
4 # Dictionary of books
5 books = {
6     '978-0134670958': {
7         'title': 'Operating Systems: Three Easy Pieces',
8         'author': 'Remzi H. Arpaci-Dusseau',
9         'publisher': 'Arpaci-Dusseau Books',
10        'volume': 1,
11        'year': 2020,
12        'isbn': '978-0134670958'
13    },
14    '978-0262033848': {
15        'title': 'Introduction to Algorithms',
16        'author': 'Thomas H. Cormen',
17        'publisher': 'The MIT Press',
18        'volume': 3,
19        'year': 2021,
20        'isbn': '978-0262033848'
21    },
22    '978-0134692881': {
23        'title': 'Machine Learning Yearning',
24        'author': 'Andrew Ng',
25        'publisher': 'Self-Published',
26        'volume': 1,
27        'year': 2022,
28        'isbn': '978-0134692881'
29    },
30    '978-0134853987': {
31        'title': 'Designing Data-Intensive Applications',
32        'author': 'Martin Kleppmann',
33        'publisher': 'O\'Reilly Media',
34        'volume': 1,
35        'year': 2021,
36        'isbn': '978-0134853987'
37    },
38    '978-0596529321': {
39        'title': 'Python Data Science Handbook',
40        'author': 'Jake VanderPlas',
41        'publisher': 'O\'Reilly Media',
42        'volume': 1,
43        'year': 2021,
44        'isbn': '978-0596529321'
45    },
46    '978-0134685991': {
47        'title': 'Python for Data Analysis',
48        'author': 'Wes McKinney',
49        'publisher': 'O\'Reilly Media',
50        'volume': 2,
51        'year': 2022,
52        'isbn': '978-0134685991'
53    },
54    '978-0596009205': {
55        'title': 'Learning Python',
56        'author': 'Mark Lutz',
57        'publisher': 'O\'Reilly Media',
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58         'volume': 5,
59         'year': 2021,
60         'isbn': '978-0596009205'
61     },
62     '978-0135166307': {
63         'title': 'Computer Systems: A Programmer\'s Perspective',
64         'author': 'Randy Bryant',
65         'publisher': 'Pearson',
66         'volume': 3,
67         'year': 2021,
68         'isbn': '978-0135166307'
69     },
70     '978-0134685991': {
71         'title': 'Python for Data Analysis',
72         'author': 'Wes McKinney',
73         'publisher': 'O\'Reilly Media',
74         'volume': 2,
75         'year': 2022,
76         'isbn': '978-0134685991'
77     },
78     '978-0135957059': {
79         'title': 'Artificial Intelligence: A Modern Approach',
80         'author': 'Stuart Russell',
81         'publisher': 'Pearson',
82         'volume': 4,
83         'year': 2022,
84         'isbn': '978-0135957059'
85     },
86     '978-0133092175': {
87         'title': 'Data Structures and Algorithm Analysis in Python',
88         'author': 'Clifford A. Shaffer',
89         'publisher': 'CRC Press',
90         'volume': 3,
91         'year': 2021,
92         'isbn': '978-0133092175'
93     },
94     '978-0367330231': {
95         'title': 'Introduction to Machine Learning with Python',
96         'author': 'Andreas C. Müller',
97         'publisher': 'O\'Reilly Media',
98         'volume': 1,
99         'year': 2021,
100        'isbn': '978-0367330231'
101    },
102    '978-0134375990': {
103        'title': 'Modern Operating Systems',
104        'author': 'Andrew S. Tanenbaum',
105        'publisher': 'Prentice Hall',
106        'volume': 4,
107        'year': 2023,
108        'isbn': '978-0134375990'
109    },
110    '978-0134842901': {
111        'title': 'The Pragmatic Programmer',
112        'author': 'Andrew Hunt',
113        'publisher': 'Addison-Wesley',
114        'volume': 20,
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115         'year': 2021,
116         'isbn': '978-0134842901'
117     },
118     '978-0367332496': {
119         'title': 'Deep Learning with Python',
120         'author': 'François Chollet',
121         'publisher': 'Manning Publications',
122         'volume': 1,
123         'year': 2022,
124         'isbn': '978-0367332496'
125     },
126     '978-0134505231': {
127         'title': 'Computer Networks',
128         'author': 'Andrew S. Tanenbaum',
129         'publisher': 'Prentice Hall',
130         'volume': 5,
131         'year': 2022,
132         'isbn': '978-0134505231'
133     },
134     '978-0596002817': {
135         'title': 'Programming Python',
136         'author': 'Mark Lutz',
137         'publisher': 'O\'Reilly Media',
138         'volume': 4,
139         'year': 2021,
140         'isbn': '978-0596002817'
141     },
142     '978-0135957059': {
143         'title': 'Artificial Intelligence: A Modern Approach',
144         'author': 'Stuart Russell',
145         'publisher': 'Pearson',
146         'volume': 4,
147         'year': 2022,
148         'isbn': '978-0135957059'
149     },
150     '978-0596158102': {
151         'title': 'Data Science from Scratch',
152         'author': 'Joel Grus',
153         'publisher': 'O\'Reilly Media',
154         'volume': 1,
155         'year': 2023,
156         'isbn': '978-0596158102'
157     },
158     '978-0135166307': {
159         'title': 'Computer Systems: A Programmer\'s Perspective',
160         'author': 'Randy Bryant',
161         'publisher': 'Pearson',
162         'volume': 3,
163         'year': 2021,
164         'isbn': '978-0135166307'
165     },
166     '978-0132815557': {
167         'title': 'Introduction to the Theory of Computation',
168         'author': 'Michael Sipser',
169         'publisher': 'Cengage Learning',
170         'volume': 3,
171         'year': 2022,
```

```
172         'isbn': '978-0132815557'
173     },
174     '978-0134685991': {
175         'title': 'Python for Data Analysis',
176         'author': 'Wes McKinney',
177         'publisher': 'O\'Reilly Media',
178         'volume': 2,
179         'year': 2022,
180         'isbn': '978-0134685991'
181     },
182     '978-0134831695': {
183         'title': 'Computer Vision: Algorithms and Applications',
184         'author': 'David L. Poole',
185         'publisher': 'Springer',
186         'volume': 1,
187         'year': 2021,
188         'isbn': '978-0134831695'
189     },
190     '978-0367332380': {
191         'title': 'Introduction to Data Science',
192         'author': 'Jeffrey Stanton',
193         'publisher': 'Springer',
194         'volume': 1,
195         'year': 2022,
196         'isbn': '978-0367332380'
197     },
198     '978-0135988061': {
199         'title': 'Data Structures and Algorithm Analysis in C++',
200         'author': 'Clifford A. Shaffer',
201         'publisher': 'CRC Press',
202         'volume': 4,
203         'year': 2021,
204         'isbn': '978-0135988061'
205     },
206     '978-0262536305': {
207         'title': 'Programming Collective Intelligence',
208         'author': 'Toby Segaran',
209         'publisher': 'The MIT Press',
210         'volume': 1,
211         'year': 2023,
212         'isbn': '978-0262536305'
213     },
214     '978-0134295482': {
215         'title': 'Principles of Compiler Design',
216         'author': 'Aho, Sethi, Ullman',
217         'publisher': 'Pearson',
218         'volume': 1,
219         'year': 2022,
220         'isbn': '978-0134295482'
221     },
222     '978-0132148505': {
223         'title': 'Elements of Programming Interviews',
224         'author': 'Adnan Aziz',
225         'publisher': 'EPI',
226         'volume': 1,
227         'year': 2023,
228         'isbn': '978-0132148505'
```

```
229     }
230 }
231
232
233 def add_book(isbn, title, author, publisher, volume, year, isbn_number):
234     """Add a book to the library."""
235     if isbn in books:
236         print("Book with this ISBN already exists.")
237     else:
238         books[isbn] = {
239             'title': title,
240             'author': author,
241             'publisher': publisher,
242             'volume': volume,
243             'year': year,
244             'isbn': isbn_number
245         }
246         print(f"Book '{title}' added successfully.")
247
248 def remove_book(isbn):
249     """Remove a book from the library by its ISBN."""
250     if isbn in books:
251         del books[isbn]
252         print(f"Book with ISBN {isbn} removed successfully.")
253     else:
254         print("Book with this ISBN does not exist.")
255
256 def get_book_details(isbn):
257     """Retrieve and display the details of a book using its ISBN."""
258     if isbn in books:
259         book = books[isbn]
260         for key, value in book.items():
261             print(f"{key.capitalize()}: {value}")
262     else:
263         print("Book with this ISBN does not exist.")
264
265 def search_books(query):
266     """Search for books by title or author."""
267     found_books = []
268     for isbn, details in books.items():
269         if query.lower() in details['title'].lower() or query.lower() in details['author'].lower():
270             found_books.append((isbn, details))
271     if found_books:
272         for isbn, details in found_books:
273             print(f"\nISBN: {isbn}")
274             for key, value in details.items():
275                 print(f"{key.capitalize()}: {value}")
276     else:
277         print("No books found matching the query.")
278
279 def list_all_books():
280     """List all books currently in the library."""
281     if books:
282         for isbn, details in books.items():
283             print(f"\nISBN: {isbn}")
284             for key, value in details.items():
285                 print(f"{key.capitalize()}: {value}")
```

```
286     else:
287         print("No books in the library.")
288
289 def update_book(isbn, title=None, author=None, publisher=None, volume=None):
290     """Update the details of an existing book."""
291     if isbn in books:
292         book = books[isbn]
293         if title is not None:
294             book['title'] = title
295         if author is not None:
296             book['author'] = author
297         if publisher is not None:
298             book['publisher'] = publisher
299         if volume is not None:
300             book['volume'] = volume
301         if year is not None:
302             book['year'] = year
303         if isbn_number is not None:
304             book['isbn'] = isbn_number
305         print(f"Book with ISBN {isbn} updated successfully.")
306     else:
307         print("Book with this ISBN does not exist.")
308
309 def is_book_available(isbn):
310     """Check if a book is available in the library by its ISBN."""
311     return isbn in books
```

In []:

1