# Object Oriented Programming

## Lab 9

### Task 1; Program for managing different types of documents:

```
class Document:
    def __init__(self, title, author):
        self.title = title
        self.author = author

    def display_info(self):
        print(f"Title: {self.title}")
        print(f"Author: {self.author}")

class Book(Document):
    def __init__(self, title, author, genre="", pages=0):
        super().__init__(title, author)
        self.genre = genre
        self.pages = pages

    def display_info(self):
        super().display_info()
        print(f"Genre: {self.genre}")
        print(f"Pages: {self.pages}")

class Article(Document):
    def __init__(self, title, author, journal="", doi=""):
        super().__init__(title, author)
```

```
        self.journal = journal
        self.doi = doi

    def display_info(self):
        super().display_info()
        print(f"Journal: {self.journal}")
        print(f"DOI: {self.doi}")

def save_document(filename, document):
    with open(filename, 'a') as file:
        if isinstance(document, Book):
file.write(f"Book,{document.title},{document.author},{document.genre},{document.pages}\n")
        elif isinstance(document, Article):
file.write(f"Article,{document.title},{document.author},{document.journal},{document.doi}\n")

def read_documents(filename):
    documents = []
    with open(filename, 'r') as file:
        for line in file:
            parts = line.strip().split(',')
            if parts[0] == "Book":
                documents.append(Book(parts[1], parts[2], parts[3], int(parts[4])))
            elif parts[0] == "Article":
                documents.append(Article(parts[1], parts[2], parts[3], parts[4]))
    return documents
```

```
filename = 'documents.txt'

book1 = Book("The Lord of the Rings", "J.R.R. Tolkien", "Fantasy", 1216)

article1 = Article("Iron Man", "Stan Lee", "Avengers", "10.1007/s10462-023-10000-0")

save_document(filename, book1)
save_document(filename, article1)
documents = read_documents(filename)

for document in documents:
    document.display_info()
    print("-" * 20)
```

## Output:

```
Title: The Lord of the Rings
Author: J.R.R. Tolkien
Genre: Fantasy
Pages: 1216
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Title: A New Approach to Machine Learning
Author: Jane Smith
Journal: Journal of AI
DOI: 10.1007/s10462-023-10000-0
--------------------
Title: The Lord of the Rings
```

Author: J.R.R. Tolkien

Genre: Fantasy

Pages: 1216

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Title: Iron Man

Author: Stan Lee

Journal: Avengers

DOI: 10.1007/s10462-023-10000-0