Job No:02

Job Name: Generate PDF Report (Students basic information)

Objective:
The code efficiently manages student information by allowing users to input student details, automatically generating a PDF report and printing student information to the console. It employs modular design and user interaction for ease of use and maintenance.

Algorithm:

1. Initialize Student Inventory Class:
    - Create a class named Student Inventory.
    - Define an empty list named students to store student information.
2. Add Student Method:
    - Define a method named add_student within the Student Inventory class.
    - Accept parameters for student ID, name, and age.
    - Create a dictionary containing the student information.
    - Append the dictionary to the students list.
3. Generate PDF Report Method:
    - Define a method named generate_pdf_report within the Student Inventory class.
    - Create a PDF object.
    - Add a page to the PDF and set the font.
    - Iterate through the student information in the students list.
    - Add each student's information to the PDF in a tabular format.
    - Save the PDF to a specified output file.
    - Print a success message indicating that the PDF report has been generated.
4. Print Students Method:
    - Define a method named print_students within the Student Inventory class.
    - Iterate through the student information in the students list.
    - Print each student's information to the console in a tabular format.
5. Main Execution:
    - Create an instance of the Student Inventory class.
    - Prompt the user to input student information for a specified number of students.

- Call the add_student method for each student to add their information to the inventory.
- Generate a PDF report using the generate_pdf_report method.
- Print student information to the console using the print_students method.

Program:

```
import csv
from fpdf import FPDF

class StudentInventory:
    def __init__(self):
        self.students = []

    def add_student(self, student_id, name, age, clas):
        self.students.append({
            'ID': student_id,
            'Name': name,
            'Age': age,
            'Class': clas
        })

    def generate_pdf_report(self, output_pdf):
        pdf = FPDF()
        pdf.add_page()
        pdf.set_font("Arial", size=12)

        # Add table header
        pdf.cell(40, 10, 'ID', 1)
        pdf.cell(60, 10, 'Name', 1)
        pdf.cell(40, 10, 'Age', 1)
```

```
        pdf.cell(40, 10, 'Class', 1)
        pdf.ln()

        # Add student data
        for student in self.students:
            pdf.cell(40, 10, student['ID'], 1)
            pdf.cell(60, 10, student['Name'], 1)
            pdf.cell(40, 10, student['Age'], 1)
            pdf.cell(40, 10, student['Class'], 1)
            pdf.ln()

        pdf.output(output_pdf)
        print("PDF report generated successfully.")

        # Print student information
        self.print_students()

    def print_students(self):
        print("Student Information:")
        print("ID\tName\tAge\tClass")
        for student in self.students:

print(f"{student['ID']}\t{student['Name']}\t{student['Age']}\t{student['Class']}")

# Example Usage
if __name__ == "__main__":
    student_inventory = StudentInventory()

    num_students = int(input("How many students to add? "))
    for i in range(num_students):
        print(f"Enter Student ({i + 1}) Information:")
```

```
        student_id = input("Enter Student ID: ")
        name = input("Enter Student Name: ")
        age = input("Enter Student Age: ")
        clas= input("Enter Student Class: ")
        student_inventory.add_student(student_id, name, age, clas)

    # Generate PDF report
    student_inventory.generate_pdf_report("students_report.pdf")
```

Output:

```
How many students to add? 2
Enter Student (1) Information:
Enter Student ID: A1
Enter Student Name: Mahfuz Ahmed Rafi
Enter Student Age: 18
Enter Student Class: 3rd semester
Enter Student (2) Information:
Enter Student ID: A2
Enter Student Name: Nick Jon
Enter Student Age: 20
Enter Student Class: 1st semester
PDF report generated successfully.
Student Information:
ID      Name Age    Class
A1      Mahfuz Ahmed Rafi       18      3rd semester
A2      Nick Jon      20      1st semester
```