

Assignment Solutions - Session 7

1. Modules and Packages

Task: Create a module named calculator with functions add, subtract, multiply, divide. Import this module into another file and perform operations.

Solution:

File: calculator.py

```
def add(a, b):  
    return a + b  
  
def subtract(a, b):  
    return a - b  
  
def multiply(a, b):  
    return a * b  
  
def divide(a, b):  
    if b != 0:  
        return a / b  
    else:  
        return "Error: Division by zero"
```

File: main.py

```
import calculator  
  
print("Addition:", calculator.add(10, 5))  
print("Subtraction:", calculator.subtract(10, 5))  
print("Multiplication:", calculator.multiply(10, 5))  
print("Division:", calculator.divide(10, 5))
```

2. File I/O Operations

Task: Write a program to create a file and store 5 student names. Read the file and display the names.

Solution:

```
# Writing names to file
```

```

with open("students.txt", "w") as f:
    students = ["Ali", "Sara", "Omar", "Noor", "Hassan"]
    for name in students:
        f.write(name + "\n")

# Reading names from file
with open("students.txt", "r") as f:
    content = f.readlines()

print("Student Names:")
for line in content:
    print(line.strip())

```

3. Modular Programming in Python

Task: Create a package named 'school' with modules student.py and teacher.py. student.py should have functions add_student, list_students. teacher.py should have functions add_teacher, list_teachers. Import and use these modules in a main program.

Solution:

File: school/student.py

```

students = []

def add_student(name):
    students.append(name)

def list_students():
    return students

```

File: school/teacher.py

```

teachers = []

def add_teacher(name):
    teachers.append(name)

def list_teachers():
    return teachers

```

File: main.py

```
from school import student, teacher
```

```
student.add_student("Ali")  
student.add_student("Sara")  
print("Students:", student.list_students())
```

```
teacher.add_teacher("Mr. Ahmed")  
teacher.add_teacher("Ms. Aisha")  
print("Teachers:", teacher.list_teachers())
```