TASK 01

```cpp
#include <iostream>
#include <string>

using namespace std;

class Wallet {
    string oN;
    double tB;
    string tH[100];
    int tC;
public:
    Wallet(string name) : oN(name), tB(0), tC(0) {}
    void add(double amt) {
        tB += amt;
        tH[tC++] = "Added $" + to_string(amt);
    }
    void spend(double amt) {
        if (tB >= amt) {
            tB -= amt;
            tH[tC++] = "Spent $" + to_string(amt);
        } else {
            cout << "Insufficient balance." << endl;
        }
    }
    void showHistory() const {
        for (int i = 0; i < tC; i++) {
            cout << tH[i] << endl;
        }
    }
    double getBalance() const { return tB; }
};

int main() {
    Wallet w("Saad");
    w.add(100);
    w.spend(50);
    w.showHistory();
```

```
    cout << "Balance: $" << w.getBalance() << endl;
    return 0;
}
```

```
PROBLEMS    OUTPUT    DEBUG CONSOL

cd "/Users/kabir/Desktop/kabir/OOP
kabir@kabirs-MacBook-Pro OOP 2nd s
sem/weak3/"task1
Added $100.000000
Spent $50.000000
Balance: $50
kabir@kabirs-MacBook-Pro weak3 %
```

TASK 02

```
#include <iostream>
#include <string>

using namespace std;

class FitnessTracker {
    string uN;
    int dSG;
    int sT;
    int cB;
public:
    FitnessTracker(string name, int goal) : uN(name), dSG(goal), sT(0), cB(0) {}
    void logSteps(int steps) {
```

```
        sT += steps;
        cB = sT * 0.05;
    }
    void showProgress() const {
        cout << "Steps Taken: " << sT << endl;
        cout << "Calories Burned: " << cB << endl;
        if (sT >= dSG) {
            cout << "Goal Achieved!" << endl;
        } else {
            cout << "Steps remaining: " << dSG - sT << endl;
        }
    }
};

int main() {
    FitnessTracker f("Laiba", 10000);
    f.logSteps(5000);
    f.showProgress();
    f.logSteps(6000);
    f.showProgress();
    return 0;
}
```

```
PROBLEMS    OUTPUT    DEBUG CONSOL

cd "/Users/kabir/Desktop/kabir/OOP
kabir@kabirs-MacBook-Pro OOP 2nd s
sem/weak3/"task2
Steps Taken: 5000
Calories Burned: 250
Steps remaining: 5000
Steps Taken: 11000
Calories Burned: 550
Goal Achieved!
kabir@kabirs-MacBook-Pro weak3 %
```

TASK 03

```cpp
#include <iostream>
#include <string>

using namespace std;

struct Book {
    string t;
    string a;
    bool av;
};

class Library {
    Book bL[100];
    int bC;
public:
    Library() : bC(0) {}
    void addBook(const Book& book) {
        bL[bC++] = book;
    }
    void lendBook(int i) {
        if (i >= 0 && i < bC && bL[i].av) {
            bL[i].av = false;
            cout << "Book lent." << endl;
        } else {
            cout << "Book not available." << endl;
        }
    }
    void returnBook(int i) {
        if (i >= 0 && i < bC && !bL[i].av) {
            bL[i].av = true;
            cout << "Book returned." << endl;
        } else {
            cout << "Invalid book index or book is available." << endl;
        }
    }
    void showBooks() const {
        for (int i = 0; i < bC; i++) {
            cout << "Title: " << bL[i].t << ", Author: " << bL[i].a << ", Available: "
<< (bL[i].av ? "Yes" : "No") << endl;
```

```
        }
    }
};

int main() {
    Library l;
    Book b1 = {"The Lord of the Rings", "J.R.R. Tolkien", true};
    l.addBook(b1);
    l.showBooks();
    l.lendBook(0);
    l.showBooks();
    l.returnBook(0);
    l.showBooks();
    return 0;
}
```

```
cd "/Users/kabir/Desktop/kabir/OOP 2nd sem/weak3/" && g++ task3.cpp -o task3
kabir@kabirs-MacBook-Pro OOP 2nd sem % cd "/Users/kabir/Desktop/kabir/OOP 2nd
sem/weak3/"task3
Title: The Lord of the Rings, Author: J.R.R. Tolkien, Available: Yes
Book lent.
Title: The Lord of the Rings, Author: J.R.R. Tolkien, Available: No
Book returned.
Title: The Lord of the Rings, Author: J.R.R. Tolkien, Available: Yes
kabir@kabirs-MacBook-Pro weak3 %
```

TASK 04

```
#include <iostream>
#include <string>

using namespace std;

class Car {
    string b;
    string m;
    double fC;
```

```
    double cFL;
public:
    Car(const string& brand, const string& model, double capacity) : b(brand),
m(model), fC(capacity), cFL(capacity) {}
    void drive(double distance) {
        double fuelNeeded = distance * 0.1;
        if (cFL >= fuelNeeded) {
            cFL -= fuelNeeded;
            cout << "Driven " << distance << " km." << endl;
        } else {
            cout << "Not enough fuel." << endl;
        }
        checkFuel();
    }
    void refuel() {
        cFL = fC;
        cout << "Fuel tank filled." << endl;
    }
    void checkFuel() const {
        if (cFL < fC * 0.1) {
            cout << "Low fuel warning!" << endl;
        }
        cout << "Fuel Level: " << cFL << "/" << fC << endl;
    }
};

int main() {
    Car c("Toyota", "Corolla", 50);
    c.drive(200);
    c.drive(350);
    c.refuel();
    c.drive(100);
    return 0;
}
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE

cd "/Users/kabir/Desktop/kabir/OOP 2nd
kabir@kabirs-MacBook-Pro OOP 2nd sem %
sem/weak3/"task4
Driven 200 km.
Fuel Level: 30/50
Not enough fuel.
Fuel Level: 30/50
Fuel tank filled.
Driven 100 km.
Fuel Level: 40/50
kabir@kabirs-MacBook-Pro weak3 %
```

TASK 05

```cpp
#include <iostream>
#include <string>

using namespace std;

class MusicPlayer {
    string pL[100];
    int pC;
    string cPS;
public:
    MusicPlayer() : pC(0), cPS("") {}
    void addSong(const string& song) {
        pL[pC++] = song;
    }
    void removeSong(int i) {
        if (i >= 0 && i < pC) {
            for (int j = i; j < pC - 1; j++) {
                pL[j] = pL[j + 1];
            }
            pC--;
            if (cPS == pL[i]) {
                cPS = "";
            }
        }
```

```
    }
    void playSong(int i) {
        if (i >= 0 && i < pC) {
            cPS = pL[i];
            cout << "Playing: " << cPS << endl;
        }
    }
    void showPlaylist() const {
        for (int i = 0; i < pC; i++) {
            cout << pL[i] << endl;
        }
    }
};

int main() {
    MusicPlayer m;
    m.addSong("Bohemian Rhapsody");
    m.addSong("Stairway to Heaven");
    m.showPlaylist();
    m.playSong(0);
    m.removeSong(0);
    m.showPlaylist();
    return 0;
}
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE

cd "/Users/kabir/Desktop/kabir/OOP
kabir@kabirs-MacBook-Pro OOP 2nd se
sem/weak3/"task5
Bohemian Rhapsody
Stairway to Heaven
Playing: Bohemian Rhapsody
Stairway to Heaven
kabir@kabirs-MacBook-Pro weak3 %
```