

```
import 'dart:io';
```

```
void main() {  
    const double taxRate = 0.15;  
  
    // القوائم لتخزين المدخلات: كل عنصر Map بوصف = مبلغ (double)  
    List<Map<String, double>> incomeList = [];  
    List<Map<String, double>> expenseList = [];  
  
    print('Welcome to the Budget Management Application!');  
  
    while (true) {  
        print("");  
        print('Please choose an option:');  
        print('1. Add income');  
        print('2. Add expense');  
        print('3. View summary');  
        print('4. Exit');  
        stdout.write('\nEnter your choice: ');  
  
        String? input = stdin.readLineSync();  
        if (input == null) {  
            print('Invalid choice. Please enter a number between 1 and 4.');
```

```
            continue;  
        }
```

```
        input = input.trim();  
        int? choice = int.tryParse(input);  
        if (choice == null) {  
            print('Invalid choice. Please enter a number between 1 and 4.');
```

```
            continue;  
        }
```

```
}
```

```
// استخدام if/else للتحكم بالاختيارات كما هو مطلوب
```

```
if (choice == 1) {
```

```
    // Add income
```

```
    stdout.write("Enter income description: ");
```

```
    String? desc = stdin.readLineSync();
```

```
    desc = (desc == null || desc.trim().isEmpty) ? 'Untitled Income' : desc.trim();
```

```
    while (true) {
```

```
        stdout.write("Enter income amount: ");
```

```
        String? amtLine = stdin.readLineSync();
```

```
        if (amtLine == null) {
```

```
            print("Invalid amount. Please enter a non-negative number.");
```

```
            continue;
```

```
        }
```

```
        amtLine = amtLine.trim();
```

```
        double? amount = double.tryParse(amtLine);
```

```
        // التحقق من صحة القيمة: رقم وغير سالب
```

```
        if (amount == null || amount.isNaN || amount < 0) {
```

```
            print("Invalid amount. Please enter a non-negative number.");
```

```
            continue;
```

```
        }
```

```
        incomeList.add({desc: amount});
```

```
        print("Income added!");
```

```
        break;
```

```
    }
```

```
    } else if (choice == 2) {
```

```
        // Add expense
```

```
        stdout.write("Enter expense description: ");
```

```
        String? desc = stdin.readLineSync();
```

```
        desc = (desc == null || desc.trim().isEmpty) ? 'Untitled Expense' : desc.trim();
```

```

while (true) {
    stdout.write("Enter expense amount: ");
    String? amtLine = stdin.readLineSync();
    if (amtLine == null) {
        print("Invalid amount. Please enter a non-negative number.");
        continue;
    }
    amtLine = amtLine.trim();
    double? amount = double.tryParse(amtLine);
    // التحقق من صحة القيمة: رقم وغير سالب
    if (amount == null || amount.isNaN || amount < 0) {
        print("Invalid amount. Please enter a non-negative number.");
        continue;
    }
    expenseList.add({desc: amount});
    print("Expense added!");
    break;
} else if (choice == 3) {
    // View summary
    double totalIncome = 0.0;
    double totalExpenses = 0.0;

    // حساب مجموع الدخل
    for (var entry in incomeList) {
        // كل map يتوقع مفتاح واحد => (description) قيمة amount
        for (var value in entry.values) {
            totalIncome += value;
        }
    }
}

```

```

// حساب مجموع المصاريف
for (var entry in expenseList) {
    for (var value in entry.values) {
        totalExpenses += value;
    }
}

```

```
double net = totalIncome - totalExpenses;
```

```

print("");
print('Summary:');
print("");
print('Total income: \${totalIncome.toStringAsFixed(2)}');
print('Total expenses: \${totalExpenses.toStringAsFixed(2)}');

```

```

if (net >= 0) {
    print('\nNet profit: \${net.toStringAsFixed(2)}');
} else {
    print('\nNet loss: \${(net.abs()).toStringAsFixed(2)}');
}

```

```

// حساب الضريبة باستخدام ternary operator: تُحسب فقط إذا كان صافي الربح موجب
double tax = net > 0 ? (net * taxRate) : 0.0;

if (net > 0) {
    print('\nTax to be paid (15%): \${tax.toStringAsFixed(2)}');
}

```

```

// إضافة عرض مبسط للمدخلات (اختياري لكن مفيد)
if (incomeList.isNotEmpty) {
    print('\nIncome entries:');
    for (var i = 0; i < incomeList.length; i++) {

```

```

        var map = incomeList[i];

        String desc = map.keys.first;

        double amt = map.values.first;

        print(' ${i + 1}. $desc - \${amt.toStringAsFixed(2)}');

    }

    } else {

        print('\nNo income entries.');

    }

    if (expenseList.isNotEmpty) {

        print('\nExpense entries:');

        for (var i = 0; i < expenseList.length; i++) {

            var map = expenseList[i];

            String desc = map.keys.first;

            double amt = map.values.first;

            print(' ${i + 1}. $desc - \${amt.toStringAsFixed(2)}');

        }

    } else {

        print('\nNo expense entries.');

    }

    } else if (choice == 4) {

        print('Exiting the application. Goodbye!');

        break;

    } else {

        print('Invalid choice. Enter a number between 1 and 4.');
```