# Green Investment Portfolio Manager: Use Case & Explanation

## 📌 Use Case: Green Investment Portfolio Manager

### 🔹 Objective:

The program helps investors explore and analyze eco-friendly investment options by providing:

1. A categorized list of sustainable investments (solar, wind, EVs, etc.)
2. Key metrics like expected ROI and risk level
3. A calculator to project investment growth

### 🔹 Target Users:

1. Individual Investors – Wanting to align investments with environmental values
2. Financial Advisors – Helping clients build ESG (Environmental, Social, Governance) portfolios
3. Sustainability Analysts – Researching green investment trends
4. Educational Institutions – Teaching sustainable finance concepts

### 🔹 Key Features:

✅ Investment Categories – Solar, wind, EVs, green bonds, etc.  
✅ Risk-Return Analysis – Helps compare low-risk vs. high-growth options  
✅ ROI Calculator – Projects future value based on expected returns

## 🌿 How the Program Works (Step-by-Step Explanation)

### 1️⃣ Investment Categories (Enum: GreenInvestmentType)

* Defines different types of green investments (solar, wind, EVs, etc.).
* Each type has:
  + Name (e.g., "Solar Energy")
  + Description (e.g., "Invest in solar panel manufacturers")

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enum GreenInvestmentType {

SOLAR\_ENERGY("Solar Energy Companies", "Invest in photovoltaic cell manufacturers"),

WIND\_POWER("Wind Power", "Invest in wind turbine manufacturers"),

*// ... other options*

}

### 2️⃣ Investment Class (GreenInvestment)

* Represents a specific investment opportunity (e.g., Tesla, Vestas Wind Systems).
* Contains:
  + Company Name
  + Expected ROI (%) – Annual return estimate
  + Risk Level (1-5) – 1 = Safest, 5 = Riskiest

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static class GreenInvestment {

private GreenInvestmentType type;

private String companyName;

private double expectedROI;

private int riskLevel;

*// ... constructor, getters, and toString()*

}

### 3️⃣ Investment Growth Calculator

* Uses compound interest formula to project future value:
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* Future Value = Principal × (1 + Annual ROI)^Years
* Example:
  + $10,000 invested in Solar Energy (8.5% ROI) for 5 years → $15,036

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public static double calculateGreenInvestmentGrowth(double principal, double annualRate, int years) {

return principal \* Math.pow(1 + annualRate/100, years);

}

### 4️⃣ User Interaction (Main Method)

1. Displays a menu of investment options.
2. Accepts user input to select an investment.
3. Shows details (ROI, risk, description).
4. Calculates growth based on user inputs (amount & years).

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public static void main(String[] args) {

List<GreenInvestment> portfolio = new ArrayList<>();

portfolio.add(new GreenInvestment(GreenInvestmentType.SOLAR\_ENERGY, "SunPower", 8.5, 3));

*// ... more investments*

Scanner scanner = new Scanner(System.in);

System.out.println("🌱 Green Investment Opportunities 🌱");

*// ... display menu, get input, show results*

}

## 📊 Sample Output

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🌱 Green Investment Opportunities 🌱

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Available Green Investment Options:

1. Solar Energy Companies

2. Wind Power

3. Electric Vehicles

4. Green Bonds

5. Sustainable Agriculture

Select an option (1-5): 3

Tesla (Electric Vehicles)

Expected ROI: 12.50%

Risk Level: 4/5

Description: Invest in EV manufacturers or charging infrastructure

Investment Growth Calculator:

Enter initial amount ($): 10000

Enter duration (years): 5

Projected value after 5 years: $18,003.16

Potential profit: $8,003.16

Annualized return: 12.50%

## 🚀 Why This Matters?

✔ Helps investors make data-driven decisions on sustainable investments.  
✔ Encourages green financing by making ESG options accessible.  
✔ Educational tool for understanding risk vs. return in eco-friendly markets.

### Possible Extensions:

* Real-time stock data integration (via APIs like Yahoo Finance).
* Portfolio diversification suggestions.
* Carbon impact metrics (tons of CO₂ saved per investment).