CASELETS ON XNPV AND XIRR

Case: Evaluating Project Zenith at SunGlow Systems Pvt. Ltd.

SunGlow Systems Pvt. Ltd., a company specializing in solar energy solutions, is assessing **Project Zenith**, a venture aimed at providing affordable solar lighting kits to remote villages. The project's cash flows are irregular, driven by phased customer payments, performance-linked government grants, and region-specific operational milestones.

These non-periodic cash flows highlight the challenges of managing projects with dynamic timelines and diverse funding sources. To accurately evaluate Project Zenith's financial viability, SunGlow Systems employs **XNPV** and **XIRR**, which incorporate the exact dates of cash flows, ensuring precise financial analysis compared to traditional NPV and IRR methods.

Input Data for Project Zenith:

Period	Net Cash Flow (₹)	Cash Flow Date
0	₹ -10,000	01-Jan-2018
1	₹ 2,000	15-Mar-2018
2	₹ 2,500	15-Aug-2018
3	₹ 3,000	15-Feb-2019
4	₹ 2,500	15-Jun-2019
5	₹ 2,000	31-Dec-2019

WACC: 10.00%

Task for Analysis:

As a financial analyst at SunGlow Systems, your task is to:

1. Calculate the **Net Present Value (XNPV)** for Project Zenith, considering the cash flows and their specific dates.
2. Determine the **Internal Rate of Return (XIRR)** to evaluate the project's profitability.

Based on your findings, provide a recommendation on whether SunGlow Systems should proceed with Project Zenith.

Case: Evaluating Project Zest at EcoTech Solutions

EcoTech Solutions, a fast-growing renewable energy company, is evaluating **Project Zest**, a new initiative focused on installing solar energy systems for rural communities. The cash flows for Project Zest are irregular, driven by payments tied to installation milestones, subsidies disbursed after audits on specific dates, and client payments made on flexible schedules. Given the irregular timing of cash flows, EcoTech's finance team uses **XNPV** and **XIRR**, which incorporate the exact dates of the cash flows.

Input Data for Project Zest:

Period	Net Cash Flow (₹)	Cash Flow Date
0	₹ -15,000	01-Jan-2022
1	₹ 3,000	15-Mar-2022
2	₹ 4,500	15-Jul-2022
3	₹ 5,000	15-Jan-2023
4	₹ 2,500	15-Jun-2023
5	₹ 3,500	31-Dec-2023

WACC: 9.50%

Task for Analysis:

As the financial analyst at EcoTech Solutions, your task is to:

1. Calculate the **Net Present Value (XNPV)** for Project Zest, considering the cash flows and their specific dates.
2. Determine the **Internal Rate of Return (XIRR)** to evaluate the project's profitability.

Evaluating Project Spark at LuminaTech Pvt. Ltd.

LuminaTech Pvt. Ltd., a leader in energy-efficient lighting, is evaluating **Project Spark**, an initiative to install solar-powered streetlights in urban areas. The project's irregular cash flows arise from a staggered implementation plan, flexible client payments, and periodic government grants tied to specific milestones. Due to the uneven timing of cash flows, conventional methods like NPV and IRR, which assume regular intervals, are unsuitable. Instead, LuminaTech uses **XNPV** and **XIRR**, which factor in exact cash flow dates, providing more precise financial insights for decision-making.

Input Data for Project Spark:

Period	Net Cash Flow (₹)	Cash Flow Date
0	₹ -20,000	01-Feb-2021
1	₹ 5,000	01-Jun-2021
2	₹ 6,000	01-Nov-2021
3	₹ 8,000	01-May-2022
4	₹ 4,500	01-Aug-2022
5	₹ 3,000	01-Dec-2022

WACC: 10.00%

Task for Analysis:

As the financial analyst at LuminaTech, your task is to:

1. Calculate the **Net Present Value (XNPV)** for Project Spark, considering the cash flows and their specific dates.
2. Determine the **Internal Rate of Return (XIRR)** to evaluate the project's profitability.

Using these metrics, recommend whether LuminaTech should proceed with Project Spark.

Case: Evaluating Project Bright at SolarVision Pvt. Ltd.

SolarVision Pvt. Ltd., a startup specializing in solar-powered home solutions, is considering **Project Bright**, a plan to deploy compact solar kits in semi-urban regions. Unlike conventional projects with regular cash flows, Project Bright's cash flows are irregular due to variable project timelines, installment-based customer payments, and funding disbursed by local development programs tied to performance milestones.

This irregular cash flow pattern reflects the operational challenges of phased implementations and funding dependencies. To accurately assess the project's financial viability, SolarVision's finance team employs **XNPV** and **XIRR**, which incorporate the exact dates of cash flows, offering a precise evaluation compared to traditional NPV and IRR methods.

Input Data for Project Bright:

Period	Net Cash Flow (₹)	Cash Flow Date
0	₹ -12,000	01-Apr-2019
1	₹ 2,500	15-Jul-2019
2	₹ 3,000	15-Oct-2019
3	₹ 3,500	15-Feb-2020
4	₹ 4,000	15-Jun-2020
5	₹ 3,800	31-Dec-2020

WACC: 8.75%

Task for Analysis:

As a financial analyst at SolarVision, your task is to:

1. Calculate the **Net Present Value (XNPV)** for Project Bright, considering the cash flows and their specific dates.
2. Determine the **Internal Rate of Return (XIRR)** to evaluate the project's profitability.

Based on your findings, recommend whether SolarVision should proceed with Project Bright.

Case: Evaluating Project Radiant at GreenLight Energy Pvt. Ltd.

GreenLight Energy Pvt. Ltd., a company dedicated to sustainable energy solutions, is assessing **Project Radiant**, a plan to install solar heating systems in rural schools. The project's cash flows are irregular due to staggered customer payments, milestone-based government subsidies, and seasonal variations in installation schedules. These irregular cash flows highlight the complexities of executing projects with diverse stakeholders and time-dependent funding. To accurately evaluate the financial potential of Project Radiant, GreenLight's finance team uses **XNPV** and **XIRR**, which consider the exact timing of each cash flow, ensuring a more precise analysis compared to traditional NPV and IRR methods.

Input Data for Project Radiant:

Period	Net Cash Flow (₹)	Cash Flow Date
0	₹ -18,000	01-Jan-2020
1	₹ 4,000	15-Mar-2020
2	₹ 5,000	15-Jul-2020
3	₹ 6,000	15-Jan-2021
4	₹ 4,500	15-Jun-2021
5	₹ 3,000	31-Dec-2021

WACC: 9.00%

Task for Analysis:

As a financial analyst at GreenLight Energy, your task is to:

1. Calculate the **Net Present Value (XNPV)** for Project Radiant, incorporating the cash flows and their specific dates.
2. Determine the **Internal Rate of Return (XIRR)** to assess the project's profitability.

Based on your analysis, recommend whether GreenLight Energy should proceed with Project Radiant.

Case: Evaluating Project Horizon at BrightFuture Renewables Pvt. Ltd.

BrightFuture Renewables Pvt. Ltd., a leader in sustainable energy solutions, is considering **Project Horizon**, a venture to deploy energy-efficient solar cooling systems in agricultural storage facilities. The cash flows for this project are irregular due to milestone-based installations, seasonal demand variations, and phased subsidy disbursements from government programs.

These irregular cash flows reflect the operational complexity and tailored financial structure of Project Horizon. To accurately evaluate the project's viability, BrightFuture's finance team uses **XNPV** and **XIRR**, which account for the exact timing of each cash flow, providing a precise and realistic financial analysis compared to traditional methods like NPV and IRR.

Input Data for Project Horizon:

Period	Net Cash Flow (₹)	Cash Flow Date
0	₹ -25,000	01-May-2023
1	₹ 6,000	01-Aug-2023
2	₹ 7,000	01-Nov-2023
3	₹ 8,000	01-Mar-2024
4	₹ 6,500	01-Aug-2024
5	₹ 4,000	31-Dec-2024

WACC: 10.25%

Task for Analysis:

As a financial analyst at BrightFuture Renewables, your task is to:

1. Calculate the **Net Present Value (XNPV)** for Project Horizon, incorporating the cash flows and their specific dates.
2. Determine the **Internal Rate of Return (XIRR)** to evaluate the project's profitability.

Based on your analysis, provide a recommendation on whether BrightFuture Renewables should proceed with Project Horizon.