As NPV... project is not feasible.

* **IRR** (Internal Rate of Return).

- It is used to find out profitability of an investment.

* How IRR is calculated?
  - used same formula as NPV
  - uses trial & error mld to find out the discount rate/return rate that makes the NPV zero.

ex. A company wishes to invest in a new proje. It has two alternatives A & B. Following data is available. Which project will company select based on NPV & IRR.

	Project A	Project B
Initial Investment	10,50,000	12,75,000
Cash Inflow in Rs		
Year 1	5,50,000	7,50,000
2	7,00,000	5,00,000
Interest Rate	10%	10%

et A:

$$NPV = \frac{5,50,000}{(1+0.1)^1} + \frac{7,00,000}{(1+0.1)^2} - 10,50,000$$

$$= \frac{5,50,000}{1.1} + \frac{7,00,000}{1.21} - 10,50,000$$

$$= (5,00,000 + 5785 12.39) - 10,50,000$$

$$= 1,078,512.39 - 10,50,000$$

$$= 28,512.39 \, Rs.$$

Project B:-

$$NPV = \frac{7,50,000}{(1+0.1)^1} + \frac{5,00,000}{(1+0.1)^2} - 12,75,000$$

$$= \frac{7,50,000}{1.1} + \frac{5,00,000}{(1.1)^2} - 12,75,000$$

$$= (681,818.18 + 413,222.14) - 12,75,000$$

NPV $= -179,958.68$ Rs.

Hence, Proj. B is not feasible, Project A is to be selected.

→ IRR:

$$IRR = \frac{5,50,000}{(1+r)^1} + \frac{7,00,000}{(1+r)^2} - 10,50,000$$

Trial 1: Consider $i = 10\%$.

$$0 = \frac{5,50,000}{1.1} + \frac{7,00,000}{1.21} - 10,50,000$$

$$0 = 28,512.39 \text{ Rs}$$

Trial 2: consider, $i = 11\%$.

$$0 = \frac{5,50,000}{(1+0.11)} + \frac{7,00,000}{(1+0.11)^2} - 10,50,000$$

$$= \frac{5,50,000}{1.11} + \frac{7,00,000}{(1.11)^2} - 10,50,000$$

$$= 495,495.495 + \frac{7,00,000}{1.2321} - 10,50,000$$

$$= (495,495.495 + 568,135.703) - 10,50,000$$

$$= 1063,631.2 - 10,50,000$$

$$0 = 13,631.2 \%$$

Trial 3:

$$0 = \frac{5,50,000}{1.12} + \frac{7,00,000}{(1.12)^2} - 10,50,000$$

$$= \frac{5,50,000}{1.12} + \frac{7,00,000}{1.2544} - 10,50,000$$

$$= (491,071.423 + 558,035.714) - 10,50,000$$

$$= 10,49,107.14 - 10,50,000$$

$$= -892.86$$

Trial 4: $i = 11.95\%$

$$0 = \frac{5,50,000}{(1+0.1195)} + \frac{7,00,000}{(1+0.1195)^2} - 10,50,000$$

$$= \frac{5,50,000}{1.1195} + \frac{7,00,000}{1.25328025}$$

$$= 491,290.755 + 558534.294 - 10,50,000$$

$$= 10,49,825.05 - 10,50,000$$

$$= -174.95$$

5: $i = 11.937$

$$0 \leq 11$$

BCR EX.

	Years	Proj. A	Proj B
NPV Proj A = -9356.5	0	4,00,000	4,50,000
B = 9602	1	1,20,000	1,40,000
	2	1,25,000	1,45,000
BCR Proj A = 0.975	3	78,000	76,000
B = 1.02	4	80,000	65,000
	5	25,000	60,000
	6	—	90,000