CALCULATING THE NET PRESENT VALUE (NPV)

2 IMPORTANT VARIABLES THAT WILL ALWAYS BE GIVEN ARE:

- **The ESTIMATED CASH FLOW FOR EACH PROJECT**
- **The DISCOUNT FACTOR RATE (TABLE WILL BE GIVEN IN THE EXAM – see below)**

YOU NEED TO DETERMINE

- **THE DISCOUNTED CASH FLOW of each project from 0-6 years first, and then the**
- **NPV**

MAY 2014 EXAM – Question 2

2.2 The cash flows of two projects are given in table 1 below:

Year	Project 1	Project 2
0	-250000	-300000
1	25000	25000
2	25000	50000
3	50000	75000
4	50000	50000
5	100000	50000
6	100000	75000

Table 1 for Question 2.2

Calculate the net present values of all the projects using a discount factor of 8%. Which project has the best NPV? (3)

Year	8% discount rate	10% discount rate	12% discount rate
0	1	1	1
1	0.9259	0 9091	0.8929
2	0.8573	0.8264	0.7972
3	0 7938	0 7513	0.7118
4	0.735	0.683	0.6355
5	0.6806	0.6209	0.5674
6	0.6302	0.5645	0.5066

Table 2 for Question 2.2: Table of Nett Present Value Discount Factors

STEP 1

- DRAW TABLE
- **SELECT** THE **CORRECT DISCOUNT RATE** (As the question above states, you need to select the discount rate column at **8%)** and then **INSERT** the rate into the COLUMN as illustrated below.
- **INSERT** the **ESTIMATED CASH FLOW** for each project as given.

Year	DISCOUNT FACTOR @8% Discount Rate	ESTIMATED CASH FLOW Project 1	DISCOUNTED CASH FLOW	ESTIMATED CASH FLOW Project 2	DISCOUNTED CASH FLOW
0	1	-R 250,000	?	-R 300,000	?
1	0,9259	R 25,000	?	R 25,000	?
2	0,8573	R 25,000	?	R 50,000	?
3	0,7938	R 50,000	?	R 75,000	?
4	0,735	R 50,000	?	R 50,000	?
5	0,6806	R 100,000	?	R 50,000	?
6	0,6302	R 100,000	?	R 75,000	?
NPV			**?**		**?**

STEP 2

- Multiply the Discount rate with the Estimated Cash Flow value for each project starting from 0 to 6 years. **(DISCOUNT RATE X ESTIMATED CASH FLOW = DISCOUNTED CASH FLOW)**

Year	DISCOUNT FACTOR @8% Discount Rate	ESTIMATED CASH FLOW Project 1	DISCOUNTED CASH FLOW	ESTIMATED CASH FLOW Project 2	DISCOUNTED CASH FLOW
0	1	-R 250,000	-R 250,000	-R 300,000	-R 300,000
1	0,9259	R 25,000	R 23,147.5	R 25,000	R 23,147.5
2	0,8573	R 25,000	R 21,432.5	R 50,000	R 42,865
3	0,7938	R 50,000	R 39,690	R 75,000	R 59,535
4	0,735	R 50,000	R 36,750	R 50,000	R 36,750
5	0,6806	R 100,000	R 68,060	R 50,000	R 34,030
6	0,6302	R 100,000	R 63,020	R 75,000	R 47,265
NPV			**?**		**?**

STEP 3

- Add the values in the **DISCOUNTED CASH FLOW** column, which totals the NPV
  Remember to take into account the positive and negative signs of each value!!

Year	DISCOUNT FACTOR @8% Discount Rate	ESTIMATED CASH FLOW Project 1	DISCOUNTED CASH FLOW	ESTIMATED CASH FLOW Project 2	DISCOUNTED CASH FLOW
0	1	-R 250,000	-R 250,000	-R 300,000	-R 300,000
1	0,9259	R 25,000	R 23,147.5	R 25,000	R 23,147.5
2	0,8573	R 25,000	R 21,432.5	R 50,000	R 42,865
3	0,7938	R 50,000	R 39,690	R 75,000	R 59,535
4	0,735	R 50,000	R 36,750	R 50,000	R 36,750
5	0,6806	R 100,000	R 68,060	R 50,000	R 34,030
6	0,6302	R 100,000	R 63,020	R 75,000	R 47,265
NPV			**R2,100**		**-R56,407.50**

The Project with the **BEST NPV** is **Project 1**

TRY TO ATTEMPT THE NOVEMBER 2014 EXAM QUESTION 2

Project C had the best NPV of R7, 416.

Calculate the NPV of Project A and B and confirm whether C has the most favourable NPV of the 3 Projects.

2.1 The cash flows of Projects A, B and C is given in the table 1 below (in ZAR, South African rand, R)

Year	Project A	Project B	Project C
0	-R 250,000 00	-R 300,000 00	-R 200,000 00
1	R 25,000 00	R 25,000 00	R 40,000 00
2	R 25,000 00	R 50,000 00	R 40,000 00
3	R 50,000 00	R 75,000.00	R 40,000 00
4	R 50,000 00	R 50,000 00	R 40,000 00
5	R 100,000 00	R 50,000 00	R 80,000 00
6	R 100,000 00	R 75,000 00	R 80,000 00

Table 1 for Question 2

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d) Calculate the net present values of all the projects using a discount factor of 12% Which project has the best NPV? (7)

Year	8% discount rate	10% discount rate	12% discount rate
0	1	1	1
1	0 9259	0.9091	0 8929
2	0 8573	0 8264	0 7972
3	0 7938	0 7513	0.7118
4	0 735	0 683	0 6355
5	0 6806	0 6209	0 5674
6	0.6302	0 5645	0 5066

Table 2 for Question 2.d: Table of Net Present Value Discount Factors

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