

GE 403

Engineering Economy

Second Semester 1443 H

2022

Engineering Economic Analysis

- **m**= Investment proposal (projects A, B, C...) and we can form 2^m to get the alternatives, for Example, if there 4 investment proposals, we can form 16 investment alternatives ($2^4=16$) .
- Contingent: one proposal cannot be selected because it is dependent on another's alternatives.
- Mutually exclusive: if there are two proposals A, B and at most one can be selected.
- Beware that the “Do Nothing” is an alternative.

Example 1

- Two proposals (A,B) are available for investment; list all possible combinations of proposals.

Solution

$2^m = 4$ alternatives.

Alternative	A	B
1	0	0
2	1	0
3	0	1
4	1	1

Example2

Four proposals (A, B, C and D) are available for investment, proposals A and C are mutually exclusive (**cannot both be accepted**) , proposal B is contingent upon the acceptance of either proposal C or D, and proposal A is contingent on D. list all possible combinations of proposals and clearly show which are feasible.

Solution

Alternative	A	B	C	D	Comments
1	0	0	0	0	Feasible
2	1	0	0	0	“A” CONTINGENT ON “D”
3	0	1	0	0	“B” CONTINGENT ON “C” or “ D”
4	1	1	0	0	“B” CONTINGENT ON “C” or “ D”
5	0	0	1	0	Feasible
6	1	0	1	0	NOT BOTH “A” AND “C”
7	0	1	1	0	Feasible
8	1	1	1	0	NOT BOTH “A” AND “C”
9	0	0	0	1	Feasible
10	1	0	0	1	Feasible
11	0	1	0	1	Feasible
12	1	1	0	1	Feasible
13	0	0	1	1	Feasible
14	1	0	1	1	NOT BOTH “A” AND “C”
15	0	1	1	1	Feasible
16	1	1	1	1	NOT BOTH “A” AND “C”

Solution (Cont.)

There are nine feasible alternatives:

{Do nothing}, {C}, {B, C}, {D}, {A, D}, {B, D}, {A, B, D},
{C, D}, {B, C, D}