# Ejercicio N°1

PC=0,8 ; Pv=1,25 ; Prei=0,60 ; Prep=0,88

X=Y 🡪 C(x,y)=1,25Y-0,8\*X

X<Y 🡪 C(x,y)=1,25Y-0,8\*X-0,88(Y-X)

X>Y 🡪 C(x,y)=1,25y-0,8\*X+0,60(X-Y)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Y1** | **Y2** | **Y3** |  |  |
| **X1** | 45 | 82 | 119 |  |  |
| **X2** | 25 | 90 | 127 |  |  |
| **X3** | 5 | 70 | 135 |  |  |
|  |  |  |  |  |  |
| 1. **Criterio de Wald** | | | |  |  |
|  |  |  |  |  |  |
|  | **Y1** | **Y2** | **Y3** | **Maximin** |  |
| **X1** | 45 | 82 | 119 | 45 |  |
| **X2** | 25 | 90 | 127 | 25 |  |
| **X3** | 5 | 70 | 135 | 5 |  |
|  |  |  |  | 45 |  |

De acuerdo al criterio de Wald se deberían comprar 100 yogurt

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 1. **Criterio de Hurwicz** | | | | 0,7 | 0,3 |
|  |  |  |  |  |  |
|  | **Y1** | **Y2** | **Y3** |  |  |
| **X1** | 45 | 82 | 119 | 96,8 |  |
| **X2** | 25 | 90 | 127 | 96,4 |  |
| **X3** | 5 | 70 | 135 | 96 |  |

De acuerdo al criterio de Hurwicz se deberían comprar 100 yogurt

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. **Criterio de Savage** | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | **Y1** | **Y2** | **Y3** |  |  | **Y1** | **Y2** | **Y3** | **Minimax** |
| **X1** | 45 | 82 | 119 |  | **X1** | 0 | 8 | 16 | 16 |
| **X2** | 25 | 90 | 127 |  | **X2** | 20 | 0 | 8 | 20 |
| **X3** | 5 | 70 | 135 |  | **X3** | 40 | 20 | 0 | 40 |
|  |  |  |  |  |  |  |  |  | 16 |

De acuerdo al criterio de Savage se deberían comprar 100 yogurt

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| 1. **Criterio de Laplace** | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | **Y1** | **Y2** | **Y3** |  |  |  |  |  |  |
| **X1** | 45 | 82 | 119 | 82 |  |  |  |  |  |
| **X2** | 25 | 90 | 127 | 80,66667 |  |  |  |  |  |
| **X3** | 5 | 70 | 135 | 70 |  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Y1** | **Y2** | **Y3** |  |
| **X1** | 45 | 82 | 119 | 76,45 |
| **X2** | 25 | 90 | 127 | 74,65 |
| **X3** | 5 | 70 | 135 | 60,25 |
|  | 0,35 | 0,45 | 0,2 |  |

De acuerdo al criterio de Laplace se deberían comprar 100 yogurt

# Ejercicio N°2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criterio de Wald** | | | |  |
|  |  |  |  |  |
|  | **S1** | **S2** | **S3** | **Maximin** |
| **A1** | 85 | 60 | 40 | 40 |
| **A2** | 92 | 85 | 81 | 81 |
| **A3** | 100 | 88 | 82 | 82 |
|  |  |  |  | 82 |

De acuerdo al criterio de Wald debería estudiar toda la noche

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| **Criterio de Hurwicz** | | | | 0,8 |
|  |  |  |  |  |
|  | **S1** | **S2** | **S3** |  |
| **A1** | 85 | 60 | 40 | 76 |
| **A2** | 92 | 85 | 81 | 89,8 |
| **A3** | 100 | 88 | 82 | 96,4 |

De acuerdo al criterio de Hurwicz debería estudiar toda la noche

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Criterio de Savage** | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | **S1** | **S2** | **S3** |  |  | **S1** | **S2** | **S3** | **Minimax** |
| **A1** | 85 | 60 | 40 |  | **A1** | 15 | 28 | 42 | 42 |
| **A2** | 92 | 85 | 81 |  | **A2** | 8 | 3 | 1 | 8 |
| **A3** | 100 | 88 | 82 |  | **A3** | 0 | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |  | 0 |

De acuerdo al criterio de Savage debería estudiar toda la noche

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Criterio de Laplace** | | | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | **S1** | **S2** | **S3** |  |  |  |  |  |  |
| **A1** | 85 | 60 | 40 | 61,666667 |  |  |  |  |  |
| **A2** | 92 | 85 | 81 | 86 |  |  |  |  |  |
| **A3** | 100 | 88 | 82 | 90 |  |  |  |  |  |

De acuerdo al criterio de Laplace debería estudiar toda la noche

1. Suponiendo que el estudiante se encuentra más interesado en la calificación (letra) que en el puntaje propiamente dicho se puede realizar una nueva matriz con las calificaciones que le interesan a Joaquín.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **S1** | **S2** | **S3** |
| **A1** | B | D | F |
| **A2** | A | B | B |
| **A3** | A | B | B |

Utilizando como base la matriz anterior se puede definir una nueva escala de la siguiente manera:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A=5 | B=4 | C=3 | D=2 | F=1 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **S1** | **S2** | **S3** |
| **A1** | 4 | 2 | 1 |
| **A2** | 5 | 4 | 4 |
| **A3** | 5 | 4 | 4 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criterio de Wald** | | | |  |  |
|  |  |  |  |  |  |
|  | **S1** | **S2** | **S3** | **Maximin** |  |
| **A1** | 4 | 2 | 1 | 1 |  |
| **A2** | 5 | 4 | 4 | 4 |  |
| **A3** | 5 | 4 | 4 | 4 |  |
|  |  |  |  | 4 |  |

De acuerdo al criterio de Wald Joaquín puede optar entre: Estudiar toda la noche o Dividir la noche en partes iguales entre estudio y fiesta

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | |  | |  | |  | |  | |
|  | |  | |  | |  | |  | |  | |
| **Criterio de Hurwicz** | | | | | | | 0,8 | | 0,2 | |
|  |  | |  | |  | |  | |  | |
|  | **S1** | | **S2** | | **S3** | |  | |  | |
| **A1** | 4 | | 2 | | 1 | | 3,4 | |  | |
| **A2** | 5 | | 4 | | 4 | | 4,8 | |  | |
| **A3** | 5 | | 4 | | 4 | | 4,8 | |  | |

De acuerdo al criterio de Hurwicz Joaquín puede optar entre: Estudiar toda la noche o Dividir la noche en partes iguales entre estudio y fiesta

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Criterio de Savage** | | | |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  | |  | **S1** | **S2** | **S3** |  |  | **S1** | **S2** | **S3** | **Minimax** | | **A1** | 4 | 2 | 1 |  | **A1** | 1 | 2 | 3 | 3 | | **A2** | 5 | 4 | 4 |  | **A2** | 0 | 0 | 0 | 0 | | **A3** | 5 | 4 | 4 |  | **A3** | 0 | 0 | 0 | 0 | |  |  |  |  |  |  |  |  |  | 0 | |  |  |  |  |  |  |  |  |  |

De acuerdo al criterio de Savage Joaquín puede optar entre: Estudiar toda la noche o Dividir la noche en partes iguales entre estudio y fiesta

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Criterio de Laplace** | | | |  | |  |  |  |  |  | |  | **S1** | **S2** | **S3** |  | | **A1** | 4 | 2 | 1 | 2,3333333 | | **A2** | 5 | 4 | 4 | 4,3333333 | | **A3** | 5 | 4 | 4 | 4,3333333 | |  |  |  |  |  |  |  |  |  |

De acuerdo al criterio de Savage Joaquín puede optar entre: Estudiar toda la noche o Dividir la noche en partes iguales entre estudio y fiesta

# Ejercicio N°3

1. Enfoque pesimista (Wald). (Riesgo nulo).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | RM | RP | RB | Maximin |
| Prestar | -15.000 | 10.000 | 20.000 | -15.000 |
| No prestar | -1.000 | -1.000 | -1.000 | -1.000 |
|  |  |  |  |  |

La decisión que debe tomar para no correr ningún riesgo es la opción de no prestar.

1. Equiprobable (Laplace)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | RM | RP | RB | Maximin |
| Prestar | -15.000 | 10.000 | 20.000 | 5.000 |
| No prestar | -1.000 | -1.000 | -1.000 | -1.000 |
|  | 0.33 | 0.33 | 0.33 |  |

De acuerdo con este criterio se debería elegir la opción de prestar.

1. Mínimo lamento (Savage).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | RM | RP | RB |  |
| Prestar | 1.4000 | 0 | 0 | 14.000 |
| No prestar | 0 | 11.000 | 21.000 | 21.000 |
|  |  |  |  |  |

La decisión, en base a este criterio, sería prestar.

# Ejercicio N°4

1. Enfoque pesimista (Wald).

Demanda = 0.60\*X-600

|  |  |  |  |
| --- | --- | --- | --- |
|  | D1=1.000 | D2=10.000 | Maximin |
| Fabricar | 0 | 5.400 | 0 |
| Vender | 800 | 800 | 800 |
|  |  |  |  |

La decisión que debe tomar para no correr ningún riesgo es la opción de vender.

1. Equiprobable (Laplace)

|  |  |  |  |
| --- | --- | --- | --- |
|  | D1=1.000 | D2=10.000 | Maximin |
| Fabricar | 0 | 5.400 | 2700 |
| Vender | 800 | 800 | 800 |
|  | 0.5 | 0.5 |  |

En base a este criterio se debería optar por fabricar.

1. Mínimo lamento (Savage).

|  |  |  |  |
| --- | --- | --- | --- |
|  | D1=1.000 | D2=10.000 |  |
| Fabricar | 800 | 0 | 800 |
| Vender | 0 | 4600 | 4600 |
|  |  |  |  |

La decisión para tener el mínimo arrepentimiento sería la de fabricar.

# Ejercicio N°5

1. Enfoque pesimista (Wald).

Costo No Insp = 150 X \* 80 =

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Cat 1=5 | Cat 2=10 | Cat 3=15 | Cat 4 =20 | Cat 5=25 | Maximin |
| No insp | -600 | -1200 | -1800 | -2400 | -3000 | -3000 |
| Insp | -1500 | -1500 | -1500 | -1500 | -1500 | -1500 |
|  |  |  |  |  |  |  |

La decisión que debe tomar para no correr ningún riesgo es la opción de inspeccionar.

1. Equiprobable (Laplace)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Cat 1=5 | Cat 2=10 | Cat 3=15 | Cat 4 =20 | Cat 5=25 |  |
| No insp | -600 | -1200 | -1800 | -2400 | -3000 | -1800 |
| Insp | -1500 | -1500 | -1500 | -1500 | -1500 | -1500 |
|  |  |  |  |  |  |  |

En base a este criterio se deber optar por inspeccionar.

1. Mínimo lamento (Savage).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Cat 1=5 | Cat 2=10 | Cat 3=15 | Cat 4 =20 | Cat 5=25 |  |
| No insp | 0 | 0 | -300 | -900 | -1500 | -1500 |
| Insp | -900 | -300 | 0 | 0 | 0 | -900 |
|  |  |  |  |  |  |  |

La decisión para tener el mínimo arrepentimiento sería la de inspeccionar.

# Ejercicio N°6

a)



1. No estaría a favor de participar en el juego.

# Ejercicio N°7

|  |  |  |  |
| --- | --- | --- | --- |
|  | Ocurre Terremoto | No ocurre terremoto | VE |
| Casa estándar | 850.000 | 850.000 | 850.000 |
| Casa subestándar | 1.250.000 | 350.000 | 350.900 |
| Probabilidad | 0,001 | 0,999 |  |

U(1.250.000)=0

U(350.000)=10

U(850.000)=pU(350.000)+(1-p)(1.250.000)

U(850.000)=0,8(350.000)+0,2(1.250.000)

U(850.000)=8

|  |  |  |
| --- | --- | --- |
| Valor monetario | Valor de indif. De p | Valor de utilidad |
| 350.000 | - | 10 |
| 850.000 | 0,8 | 8 |
| 1.250.000 | - | 0 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Ocurre Terremoto | No ocurre terremoto | VE |
| Casa estándar | 8 | 8 | 8 |
| Casa subestándar | 0 | 10 | 10 |
| Probabilidad | 0,001 | 0,999 |  |

De acuerdo a la lotería desarrollada se debería construir una casa subestándar

# Ejercicio N°8

a)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gana** | **Pierde** |  |
| **Apuesta** | 10 | 0 | 5 |
| **No apuesta** | 5 | 5 | 5 |
|  | 0,5 | 0,5 |  |
|  |  |  |  |
| U(10)= | 10 |  |  |
| U(0)= | 0 |  |  |
|  |  |  |  |
|  | 0,2 |  |  |
| U(5)= | 2 |  |  |
|  |  |  |  |
| **Valor monetario** | **Valor de indif. p** | **Valor de utilidad** |  |
| 10 |  | 10 |  |
| 5 | 0,2 | 2 |  |
| 0 |  | 0 |  |
|  |  |  |  |
|  | Gana | Pierde |  |
| Apuesta | 10 | 0 | 5 |
| No apuesta | 2 | 2 | 2 |
|  | 0,5 | 0,5 |  |

1. En base a la función de utilidad anterior, si intentaría participar en el juego de póquer.

# Ejercicio N°9

Valor esperado sin información perfecta

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **S1** | **S2** | **S3** | **S4** | **VE** |
| **A1** | -20 | 60 | 30 | -5 | 12,25 |
| **A2** | 40 | 50 | 35 | 0 | 40,25 |
| **A3** | -50 | 100 | 45 | -10 | 11,25 |
| **A4** | 12 | 15 | 15 | 10 | 13,25 |
| **P(Si)** | 0,5 | 0,3 | 0,15 | 0,05 |  |

Valor esperado con información perfecta

|  |  |  |  |
| --- | --- | --- | --- |
|  | **util. Max** | **Pr(si)** |  |
| **S1** | 40 | 0,5 | 20 |
| **S2** | 100 | 0,3 | 30 |
| **S3** | 45 | 0,15 | 6,75 |
| **S4** | 10 | 0,05 | 0,5 |
|  |  |  | 57,25 |

Valor esperado de la información perfecta: 57,25 – 40,25= 17

# Ejercicio N°10

X= Cantidad de docenas a adquirir

Y= Cantidad de docenas demandadas 🡺 Estados de la naturaleza

X1=Comprar 4 docenas Y1= 4 docenas demandadas

X2= Comprar 5 docenas Y2= 5docenas demandadas

X3= Comprar 6 docenas Y3= 6 docenas demandadas

X4= Comprar 7 docenas Y4= 7 docenas demandadas

Funciones de compensación:

Y=X Cantidad adquiridas demandadas en su totalidad.

C(Xi;Yj)= 1500 Yj 🡺 Ya que x=y entonces no hay sobrante

C(Xi;Yj)= 1500Yj = 1500 Xi

* C(Xi;Yi) = 1500 Yj

X>Y

C(Xi;Yj)= 1500Yi – (50 \* 12 \* (X-Y))

C(Xi;Yi) = 2100Y – 600X

X<Y

C(Xi;Yj)= 1500Xi – (750 (Y-X))

* C(Xi;Yi) = 2250X – 750Y

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | Y1=4 | Y2=5 | Y3=6 | Y4=7 |  |
| P | 0.4 | 0.3 | 0.2 | 0.1 | VE |
| X1=4 | 6000 | 5250 | 4500 | 3750 | 5250 |
| X2=5 | 5400 | 7500 | 6750 | 6000 | 6360 |
| X3=6 | 4800 | 6900 | 9000 | 8250 | 6615 |
| X4=7 | 4200 | 6300 | 8400 | 10500 | 6300 |

1. Debería adquirir 6 docenas.
2. Matriz de los lamentos

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | Y1=4 | Y2=5 | Y3=6 | Y4=7 |  |
|  |  |  |  |  |  |
| X1=4 | 0 | 2250 | 4500 | 6750 | 6750 |
| X2=5 | 600 | 0 | 2250 | 4500 | 4500 |
| X3=6 | 1200 | 600 | 0 | 2250 | 2250 |
| X4=7 | 1800 | 1200 | 600 | 0 | 1800 |

Se deberían comprar 7 docenas, en base a este criterio.

1. Si la demanda es igual a 5 deberá solicitar 5 docenas.

# Ejercicio N°11

X= Cuantas unidades producir en el mes de junio

Y= Cantidad de unidades demandadas en diciembre

X1= 6000

X2= 7000

X3= 8000

X4= 9000

X5= 10000

Y=X Cantidad producida demandadas en su totalidad.

C(Xi;Yj)= 30 X – 12 X

* C(Xi;Yi) = 18 X = 18 Y

Y>X

C(Xi;Yj)= 30 X – 12 X

* C(Xi;Yi) = 18 X

X > Y

C(Xi;Yj)= 30 Y – ( X - Y )(1.25) – 12X

* C(Xi;Yi) = 31.25 Y – 13.25 X

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **6000** | **7000** | **8000** | **9000** | **10000** |  |
|  |  | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** |  |
| **6000** | **X1** | 108000 | 108000 | 108000 | 108000 | 108000 | 108000 |
| **7000** | **X2** | 94750 | 126000 | 126000 | 126000 | 126000 | 122250 |
| **8000** | **X3** | 81500 | 112750 | 144000 | 144000 | 144000 | 128687,5 |
| **9000** | **X4** | 68250 | 99500 | 130750 | 162000 | 162000 | 125750 |
| **10000** | **X5** | 55000 | 86250 | 117500 | 148750 | 180000 | 115937,5 |
|  | **Prob** | 0,12 | 0,25 | 0,3 | 0,22 | 0,11 |  |

Se deberían producir 8.000 unidades