CARLOS GARCIA SEGURA

4.1

1.

$$MIPS = \frac{NI}{T_{EJEC} \times 10^6}$$

$$MIPS = \frac{10^6 \cdot (543 + 346 + 415 + 256 + 235)}{10^6 \cdot (56 + 59 + 113 + 132 + 120)} = \frac{1795}{480} = 3,73$$

2.

$$CPI_{MEDIO} = \frac{\sum_{i=0} (NI_i \cdot CPI)}{NI}$$

$$CPI_{MEDIO} = \frac{3 \cdot (543 + 346 + 415) + 5 \cdot (256 + 235)}{543 + 346 + 415 + 256 + 235} = \frac{6367}{1795} =$$

$$= 3,547$$

= 3,547

4.5

1.

$$SPEC_{fp\text{-}base} = \sqrt[14]{\frac{1600}{419} \cdot \frac{3100}{562} \cdot \frac{1800}{607} \cdot \frac{2100}{658} \cdot \ldots} = 3,47$$

$$SPEC_{fp\text{-}peak} = \sqrt[14]{\frac{1600}{300} \cdot \frac{3100}{562} \cdot \frac{1800}{607} \cdot \frac{2100}{605} \cdot \ldots} = 3,74$$

2.

Total base = 8354 $\quad S = \frac{28700}{8354} = 3,44$

Total ref = 28700

3.

$Total_{base} = 8354 \quad S = \frac{8354}{7937} = 1,05$

$Total_{peak} = 7937$

4.6

1.

$Total_A = 2975$,

$Total_B = 3012$,

$S = \frac{3012}{2975} = 1{,}012$

Es un 1,2% mas rapida

2.

$$A = \sqrt[5]{\frac{2600}{503} \cdot \frac{2100}{654} \cdot \frac{9800}{707} \cdot \frac{2300}{748} \cdot \frac{1800}{363}} = 5{,}12$$

$$B = \sqrt[5]{\frac{2600}{539} \cdot \frac{2100}{762} \cdot \frac{9800}{716} \cdot \frac{2300}{760} \cdot \frac{1800}{235}} = 5{,}37$$

B es mas rapido que A

4.11

$H_0 \to R_{MA} = R_{MB}$

$$\bar{d} = \frac{(48-45)+(35-32)+(56-51)+(49-43)+(51-48)}{5} = 4$$

$$S = \sqrt{\frac{\sum_{i=1} (d_i - \bar{d})^2}{n-1}} = \sqrt{\frac{1+1+1+4+1}{4}} = \sqrt{2}$$

$$t_{exp} = \frac{\bar{d}}{\frac{S}{\sqrt{n}}} = \frac{4}{\frac{\sqrt{2}}{\sqrt{5}}} = 6{,}33$$

$6{,}33 \notin [-2{,}78 , 2{,}78]$

Rechazamos la hipotesis nula

$$S = \frac{48+35+56+49+51}{45+32+51+43+48} = \frac{239}{219} = 1{,}09$$

9% de mejora respecto a MB

4.13

$$SPEC_A = \sqrt[5]{\frac{103,9}{96,2} \cdot \frac{53,8}{73,1} \cdot \frac{156,3}{79,6} \cdot \frac{98,1}{45,2} \cdot \frac{238,5}{88,3}} = 2,20$$

$$Total_A = 96,2 , 73,1 , 79,6 + 45,2 + 88,3 = 322,4$$

$$SPEC_B = \sqrt[5]{\frac{103,9}{95,3} \cdot \frac{53,8}{70,2} \cdot \frac{156,3}{67,4} \cdot \frac{98,1}{51,8} \cdot \frac{238,5}{89,3}} = 2,32$$

$$TOTAL_B = 95,3 + 70,2 + 67,4 + 51,8 + 89,3 = 374$$

$$H_0 \to R_A = R_B$$

$$d_i = A_i - B_i$$

$$d_1 = 96,2 - 95,3 = 0,9$$

$$d_2 = 73,1 - 70,2 = 2,9$$

$$d_3 = 79,6 - 67,4 = 12,2$$

$$d_4 = 45,2 - 51,8 = -6,6$$

$$d_5 = 88,3 - 89,3 = -1$$

$$\bar{d} = \frac{0,9 + 2,9 + 12,2 - 6,6 - 1}{5} = 1,68$$

$$S = \sqrt{\frac{(0,9-1,68)^2 + (2,9-1,68)^2 + (12,2-1,68)^2 + (-6,6-1,68)^2 + (-1-1,68)^2}{4}}$$

$$= \sqrt{\frac{188}{4}} = 6,86$$

$$I_c = [\bar{d} - \frac{S}{\sqrt{n}} \cdot t_{\frac{\alpha}{2}, n-1} , \bar{d} + \frac{S}{\sqrt{n}} \cdot t_{\frac{\alpha}{2}, n-1}]$$

Intervalo de confianza $[1,68 - \frac{6,86}{\sqrt{5}} \cdot 2,78 , 1,68 + \frac{6,86}{\sqrt{5}} \cdot 2,78]$

$$= [-6,85 , 10,21]$$

Para Ho verdadera $0 \in [-6,85 , 10,21]$

No hay diferencia significativa

4.17

a)

$$C1 = \frac{15,2 + 16,2 + 16,5 + 15,9 + 14,8 + 15,2 + 15,6 + 16 + 16,3 + 15,3}{10} = 15,7$$

$$C2 = \frac{15,5 + 15,2 + 16,3 + 16,2 + 15,4 + 15,2 + 15,8 + 16 + 15,2 + 15,5}{10} = 15,63$$

$$C3 = \frac{17,8 + 18,5 + 17,9 + 18,9 + 18,5 + 18,1 + 19,5 + 18,5 + 19,4 + 19,7}{10} = 18,68$$

$$C4 = \frac{16,2 + 15,7 + 15,3 + 15,8 + 16,2 + 15,8 + 15,2 + 14,9 + 14,9 + 15}{10} = 15,5$$

$$C5 = \frac{17,8 + 17,9 + 18,1 + 18,2 + 18,9 + 18,3 + 18,8 + 17,8 + 18,2 + 18,1}{10} = 18,21$$

C3 es la mejor

Ho → El SO no influye en el rendimiento

b) Para que la Ho se cumpla el Pvalue de ANOVA tiene que ser mayor que 0,05. En nuestro caso es 0,00... así que la Ho es falsa

c) Comprobando la columna "Sig." vemos que las configuraciones 1, 2, 4 afectan igual al rendimiento pero la 3 y la 5 rechazan la hipotesis siendo la configuración 3 la mejor.