FORMULÁRIO de EACE, 1a PARTE	$SS_{XY}=\sum_1^n(X_i-\overline{X})(Y_i-\overline{Y})=\sum_1^n X_iY_i-n.\overline{X}\,\overline{Y}$ $SS_{XX}=\sum_1^n(X_i-\overline{X})^2=\sum_1^n X_i^2-n.\overline{X}^2$ $SS_{YY}=\sum_1^n(Y_i-\overline{Y})^2=\sum_1^n Y_i^2-n.\overline{Y}^2$
Variância	$S_X^2=\frac{1}{n-1}\sum_1^n(X_i-\overline{X})^2=\frac{1}{n-1}(\sum_1^n X_i^2-n.\overline{X}^2)$
CORRELAÇÃO Corr. Pearson Transf. Fisher ($n\geq 25$) Transf. Hotelling ($n>10$):	 $r=\frac{\hat{Cov}(X,Y)}{S_x.S_Y}=\frac{SS_{XY}}{\sqrt{SS_{XX}.SS_{YY}}}$ Sob $H_0:\ \rho=0$, $T=r\sqrt{\frac{n-2}{1-r^2}}\sim t_{n-2}$ $Z_r\dot{\sim}N(Z_\rho,\frac{1}{n-3})$ onde $Z_r=\frac{1}{2}\ln\frac{1+\mathrm{r}}{1-\mathrm{r}}$ $Z^*=\frac{Z_r^*-Z_\rho^*}{1/\sqrt{n-1}}\dot{\sim}N(0,1)$ onde $Z_r^*=Z_r-\frac{3Z_r+r}{4n}$
Corr. Spearman no caso de independência,	$r_S=1-\frac{6\sum_{i=1}^n(R_i-Q_i)^2}{n(n^2-1)}$ (sem empates) se $n>30$: $\sqrt{n-1}\,r_S\dot{\sim}N(0,1)$
Corr. pesada	$r_W=1-\frac{6\sum_{i=1}^n(R_i-Q_i)^2(2n+2-R_i-Q_i)}{n^4+n^3-n^2-n}$ $r_{W2}=1-\frac{90\sum_{i=1}^n(R_i-Q_i)^2(2n+2-R_i-Q_i)^2}{n(n-1)(n+1)(2n+1)(8n+11)}$ (Nota: $R_i'=R_i(2n+2-R_i)$)
REGRESSÃO LINEAR SIMPLES Modelo: $Y_i=\alpha+\beta x_i+\epsilon_i$, com $\epsilon_i\sim N(0,\sigma^2)$	$\hat{\alpha}=\overline{y}-\hat{\beta}\overline{x}$; $\hat{\beta}=\frac{\sum x_iy_i-n\overline{x}.\overline{y}}{\sum x_i^2-n\overline{x}^2}=\frac{\sum(x_i-\overline{x})(y_i-\overline{y})}{\sum(x_i-\overline{x})^2}=\frac{SS_{xy}}{SS_{xx}}$; $S^2(\hat{\alpha},\hat{\beta})=SS_{yy}-\hat{\beta}SS_{xy}$
	$\frac{S^2(\hat{\alpha},\hat{\beta})}{\sigma^2}\sim\chi^2_{n-2}$, e ind. de $\hat{\alpha},\hat{\beta}$; $\hat{\sigma}^2=\frac{S^2(\hat{\alpha},\hat{\beta})}{n-2}$ $\frac{(\hat{\alpha}-\alpha)}{s.e.(\hat{\alpha})}=\frac{(\hat{\alpha}-\alpha)}{\hat{\sigma}}\sqrt{\frac{n\sum(x_i-\overline{x})^2}{\sum x_i^2}}\sim t_{n-2}$ $\frac{(\hat{\beta}-\beta)}{s.e.(\hat{\beta})}=\frac{(\hat{\beta}-\beta)}{\hat{\sigma}}\sqrt{\sum(x_i-\overline{x})^2}\sim t_{n-2}$
Intervalo de confiança para $\alpha+\beta x^*$ Intervalo de predição para Y em x^*	$(\hat{\alpha}+\hat{\beta}x^*)\pm t_{(n-2,1-\frac{\alpha}{2})}\sqrt{\hat{\sigma}^2\left(\frac{1}{n}+\frac{(x^*-\overline{x})^2}{\sum(x_i-\overline{x})^2}\right)}$ $(\hat{\alpha}+\hat{\beta}x^*)\pm t_{(n-2,1-\frac{\alpha}{2})}\sqrt{\hat{\sigma}^2\left(1+\frac{1}{n}+\frac{(x^*-\overline{x})^2}{\sum(x_i-\overline{x})^2}\right)}$
Somas de quadrados, total: regressão: residual: Coeficiente de determinação:	 $SST=SS_{yy}=\sum(y_i-\overline{y})^2=\sum y_i^2-(\sum y_i)^2/n$ $SSR=\sum(\hat{y}_i-\overline{y})^2=\hat{\beta}^2[\sum x_i^2-(\sum x_i)^2/n]=\hat{\beta}^2SS_{xx}$ $SSE=S^2(\hat{\alpha},\hat{\beta})=\sum(y_i-\hat{y}_i)^2=SS_{yy}-SSR$ $SST=SSR+SSE$ $R^2=[Cor(Y,\hat{Y})]^2=[Cor(Y,X)]^2=\frac{SSR}{SST}=1-\frac{SSE}{SST}=\frac{\sum(\hat{y}_i-\overline{y})^2}{\sum(y_i-\overline{y})^2}=r^2$
REGRESSÃO LINEAR MÚLTIPLA $\mathbf{X}$ matriz de dados com $p+1$ colunas $\mathbf{Y}$ vetor resposta	 $\hat{\beta}=(\mathbf{X^TX})^{-1}\mathbf{X^TY}$ $\hat{\sigma}^2=\frac{\mathbf{1}}{\mathbf{n-p-1}}\sum_{\mathbf{i=1}}^{\mathbf{n}}(\mathbf{y_i}-\hat{\mathbf{y}}_\mathbf{i})^\mathbf{2}=\frac{1}{n-p-1}SSE$
Modelo: $\mathbf{Y}=\beta_\mathbf{0}+\sum\mathbf{X_j}\beta_\mathbf{j}+\epsilon$, em que $\epsilon\sim\mathbf{N}(\mathbf{0},\sigma^\mathbf{2})$	$\hat{\beta}\sim\mathbf{N}(\beta,(\mathbf{X^TX})^{-1}\sigma^\mathbf{2})$ $\frac{(\mathbf{n-p-1})\hat{\sigma}^\mathbf{2}}{\sigma^\mathbf{2}}\sim\chi^\mathbf{2}_{\mathbf{n-p-1}}$; **$\hat{\beta}$ e $\hat{\sigma}^2$ são independentes** Sob $\mathbf{H_0}:\beta_\mathbf{j}=\mathbf{0}$, $\frac{\hat{\beta}_\mathbf{j}}{\hat{\sigma}\sqrt{\nu_\mathbf{j}}}\sim\mathbf{t_{n-p-1}}$ ($\nu_\mathbf{j}$ é o j-ésimo elemento da diagonal de $(\mathbf{X^TX})^{-1}$)
IC para β_j IC para média de Y em $x^*=(x_1^*,...,x_p^*)$ Int. de predição para Y em x^*	$\hat{\beta}_j\pm t_{(1-\alpha/2)}\ s.e.(\hat{\beta}_j)=\hat{\beta}_j\pm t_{(1-\alpha/2)}\hat{\sigma}\sqrt{\nu_j}$ $\hat{\mu}^*\pm t_{(n-p-1,1-\frac{\alpha}{2})}\ s.e.(\hat{\mu}^*)=\hat{\mu}^*\pm t_{(n-p-1,1-\frac{\alpha}{2})}\hat{\sigma}\sqrt{x^{*T}(X^TX)^{-1}x^*}$ $\hat{Y}^*\pm t_{(n-p-1,1-\frac{\alpha}{2})}\ s.e.(\hat{Y}^*)=\hat{Y}^*\pm t_{(n-p-1,1-\frac{\alpha}{2})}\hat{\sigma}\sqrt{1+x^{*T}(X^TX)^{-1}x^*}$
Seja $\mathbf{H_0}:\beta_\mathbf{1}=\beta_\mathbf{2}=,\ldots,=\beta_\mathbf{k}=\mathbf{0}$	Sob $\mathbf{H_0}$, $\mathbf{F}=\frac{\mathbf{(SSE_0-SSE_1)/(p_1-p_0)}}{\mathbf{SSE_1/(n-p_1)}}\sim\mathbf{F_{p_1-p_0,n-p_1}}\to\chi^\mathbf{2}_{\mathbf{p_1-p_0}}$ $\mathbf{p_1=p+1}$ e $\mathbf{p_0=p+1-k}$. Rejeita-se H_0 se $F>F_{p_1-p_0,n-p_1,1-\alpha}$ dem: Graybill (1976), Rao(1973), Searle(1971) ou Seber & Lee (2003)
Coeficiente de correlação múltipla Coeficiente de determinação Coeficiente de determinação ajustado	$Cor(Y,\hat{Y})$ $R^2=[Cor(Y,\hat{Y})]^2=\frac{SSR}{SST}=1-\frac{SSE}{SST}=1-\frac{\sum(y_i-\hat{y}_i)^2}{\sum(y_i-\overline{y})^2}$ $R_a^2=1-\frac{SSE/(n-p-1)}{SST/(n-1)}=1-\frac{n-1}{n-p-1}(1-R^2)$ ($\neq$ prop. var. exp. reg.)