Step-1

Given that $A=\begin{pmatrix} a & b & b \\ a & a & b \\ a & a & a \end{pmatrix}$

A is invertable if $|A| \neq 0$

$|\mathrm{A}| \neq 0$

$$\Rightarrow \begin{vmatrix} a & b & b \\ a & a & b \\ a & a & a \end{vmatrix} \neq 0$$

$$\Rightarrow a(a^2-ab)-b(a^2-ab)+b(a^2-a^2) \neq 0$$

Step-2

$$\Rightarrow a(a^2-ab)-b(a^2-ab) \neq 0$$
$$\Rightarrow (a^2-ab)(a-b) \neq 0$$

$$\Rightarrow a(a-b)(a-b) \neq 0$$
$$\Rightarrow a \neq 0, a \neq b$$

Therefore A is invertible if $a \neq 0, a \neq b$

Step-3

Pivotes:-

Given that $A=\begin{pmatrix} a & b & b \\ a & a & b \\ a & a & a \end{pmatrix}$

Apply $R_2 \to R_2 - R_1, R_3 \to R_3 - R_1$

$$A=\begin{pmatrix} a & b & b \\ a & a & b \\ a & a & a \end{pmatrix} \sim \begin{pmatrix} a & b & b \\ 0 & a-b & 0 \\ 0 & a-b & a-b \end{pmatrix}$$

Step-4

apply $R_3 \to R_3 - R_2$

$$\sim \begin{pmatrix} \boxed{a} & b & b \\ 0 & \boxed{a-b} & 0 \\ 0 & 0 & \boxed{a-b} \end{pmatrix}$$

which is upper triangular matrix

And the pivots are $\boxed{a, a-b, a-b}$.