Exercise: Given R=ABCDEFGH, find a minimal cover for the following set of FD’s.

\[
\begin{align*}
ABH \to C & \quad BGH \to F & \quad E \to F \\
A \to D & \quad F \to AD & \quad BH \to E \\
C \to E & \quad F \to D \\
\end{align*}
\]

Step 1) Split the RHS wherever possible and get:

\[
\begin{align*}
ABH \to C & \quad BGH \to F & \quad E \to F \\
A \to D & \quad F \to A & \quad BH \to E \\
C \to E & \quad F \to D \\
\end{align*}
\]

Step 2) Shrink the LHS wherever possible:

- ABH \to C can become BH \to C (exercise for you: why?)
- BGH \to F can become BH \to F (ditto)

So we’re left with

\[
\begin{align*}
BH \to C & \quad BH \to F & \quad E \to F \\
A \to D & \quad F \to A & \quad BH \to E \\
C \to E & \quad F \to D \\
\end{align*}
\]

Step 3) Eliminate any redundant FD’s (i.e., those that can be inferred from the others):

- BH \to F is redundant
- F \to D is redundant
- BH \to E is redundant

What’s left is minimal:

\[
\begin{align*}
BH \to C & \\
A \to D & \\
C \to E & \\
F \to A & \\
E \to F & \\
\end{align*}
\]

We can sketch it as

\[
\begin{align*}
B & \to C \to E \to F \to A \to D \\
H & \\
\end{align*}
\]