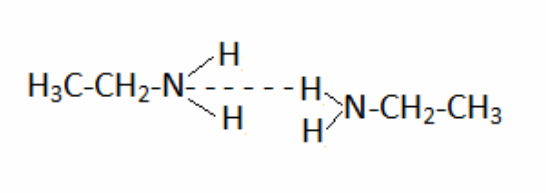
Why is $N_2NCH_2CH_2$ a hydrogen bond if the N_2N does not have any H?

For example CH_3OCH_3 is NOT a hydro bond because the O is not accompanied by an H.

Answer: My work experience tells me, it's a print mistake in the formula in your task. There is no such compound, as you wrote. It should look like the $H_2NCH_2CH_3$ (ethylamine) or $H_2NCH_2CH_2NH_2$ (ethylenediamine) or $HNCH_2CH_2$ (ethylene imine, cyclic structure). Answer your supervisor, which one should it be.

As you know, hydrogen bonds as the intermolecular force exist only between molecules where hydrogen atom is attached directly to atom of O, N or F. So, all the molecules which are shown above have got the N-H bond, that's why between them there will be the hydrogen bonds, for example:



covalent bonds are shown by dashes, hydrogen bond is the dotted line.