1. Chinese Wall policy, identified by Brewer and Nash, is a mandatory policy to prevent information flows that result in a conflict of interest in commercial segments. Study the policy and specify it formally in terms of Denning’s policy schema.

2. Assume that the security policy is stated by the following assertion.

\[
\{u\}, \{c\} : |U \text{ if } [\neg \text{CHECK}(\text{previous}, u, c) \land (\text{CHECK}(\text{previous}, u', \text{pass}(u, c)) \Rightarrow \neg \text{last} = (u', \text{pass}(u, c)) \}) \lor [\text{CHECK}(\text{previous}, u', \text{unpass}(u, c)) \land \text{last} = (u', \text{unpass}(u, c))]
\]

And assume that
\[
\text{CHECK}(w, u', \text{pass}(u, c)) = \text{CHECK}(w, (u', \text{pass}(u, c)), u, c) = \text{True}
\]
\[
\text{CHECK}(w, u', \text{unpass}(u, c)) = \text{CHECK}(w, (u', \text{unpass}(u, c)), u, c) = \text{True}
\]
\[
\text{CHECK}(\text{NIL}, u, c) = \text{False}
\]
\[
\text{CHECK}(w, u'', *, *) = \text{CHECK}(w, (u'', *, *), *, *) = \text{True}
\]
\[
\text{CHECK}(w, (u'', *, *), *, *) = \text{CHECK}(w, *, *)
\]

Apply the purge function to the following string where \(v \in U\).

\[
[[ (u, c), (u', \text{pass}(u, c)), (u'', d), (u'''', \text{unpass}(u'', \text{pass}(u, c))), (u''', \text{pass}(u, c)), (u, c) ]]\]

3. Nondeducibility is specified semi-formally in the lecture notes. Specify it fully formally using Set Theory notations.

4. Are systems \(A\) and \(B\), which are described in the lecture notes for describing non-composability of nondeducibility, GNI secure? If so, is their composition by hook-up GNI secure?