Two Applications of Theorem Proving:

Hotel Key Cards
and
Social Choice Theory

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These lectures are meant to demonstrate the wide applicability of interactive proof assistants by focusing on two very different case studies: The verification of the security of a hotel key card system, and the proof of two classic results from social choice theory: under very plausible fairness assumptions, all voting systems are dictatorships or manipulable. These proofs have been carried out with the help of the Isabelle system, but the presentation does not require any previous knowledge about theorem provers.