Programming Assignment Report

Assignment 06

Propositional Logic, Theorem Problem

Solutions

1. Implement Theorem Proving by Inference Rules. Show how to prove “Sherlock Holmes solves the case” **S**  
   Knowledge Base (KB):

**R1: (W ∧ E) → S**“If Watson helps and there is evidence, Sherlock solves the case.”  
In **R3**, **W** is true and in **R2** **E** is true, therefore **S** is true.

**R2: M → E**“If Moriarty is involved, there is evidence.”  
Since **M** is true in **R4** therefore **E** is true

**R3: ¬M ∨ W**  
“If Moriarty is not involved, then Watson helps.”  
Since **M** is true in **R4**, **¬M** is false, therefore **W** must be true

**R4: M**“Moriarty is involved.”  
**M** is true