

1. Which one of the following is true about structural hazards in a pipeline?
- (a) They will not result in any performance degradation
 - (b) They essentially mean that a pipelined implementation cannot be used
 - (c) They can be handled in a pipelined implementation by introducing stalls
 - (d) They can be handled in a pipelined implementation by data forwarding

Answer: (c)

2. In a pipelined implementation of MIPS32, which one of the following is used by the register file ideally?
- (a) write in first half, read in second half (of clock cycle)
 - (b) read and write in first half (of clock cycle)
 - (c) read and write in second half (of clock cycle)
 - (d) read in first half, write in second half (of clock cycle)

Answer: (a)

3. The second stage in a pipelined MIPS32 implementation is called
- (a) LF (latch forward)
 - (b) RRF (read register file)
 - (c) ID (instruction decode)
 - (d) BTC (branch target computation)

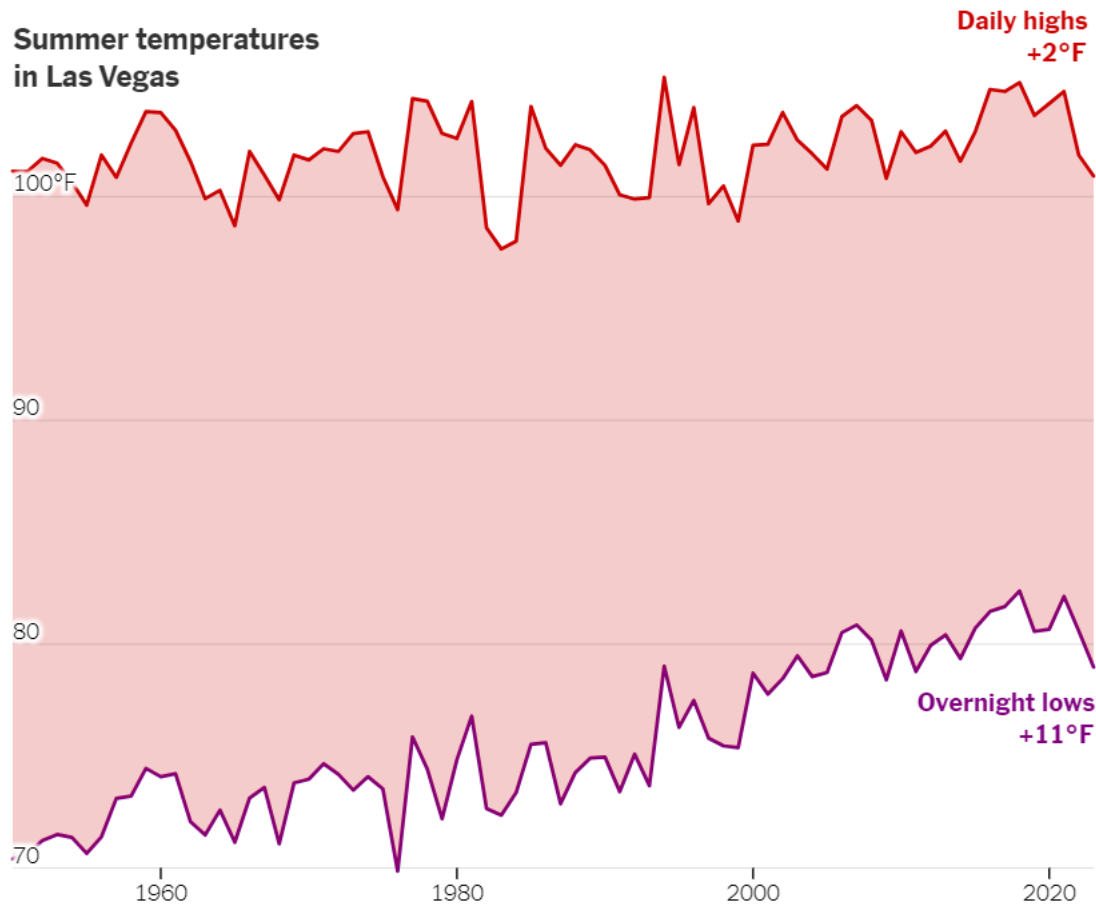
Answer: (c)

4. Which of the following are the kinds of data hazards possible in MIPS32?
- (a) RAW in register file
 - (b) WAW in register file
 - (c) RAW in memory location
 - (d) WAW in memory location

Answer: (a)

5. On 11 August 2024, the New York Times published this graph of temperatures in Las Vegas. Which one of the following is the most likely explanation of this graph?

(House points question, optional)



- (a) The global average temperatures have increased about 5-7 degrees since 1950
- (b) Warm ocean currents have shifted toward Las Vegas due to climate change
- (c) The area around Las Vegas has turned from a forest in 1950 to a desert now
- (d) This is mostly the Urban Heat Island (UHI) effect - population growth, wind blockage, more concrete, etc.

Answer: (d)