Since the notion of software aging was introduced seventeen years ago, the interest in this phenomenon has been increasing from both academia and industry. The majority of the research efforts in studying software aging have focused on understanding its effects theoretically and empirically. However, conceptual aspects related to the foundation of this phenomenon have not been covered sufficiently in the literature. This talk discusses foundational aspects of the software aging phenomenon, presenting the fundamental concepts of the software aging theory. The most important elements of the body of knowledge in software aging will be revisited, making connections between their theoretical and practical aspects. Real case studies of software aging are presented with the purpose of exemplifying many of the concepts discussed. Finally, ongoing projects in software aging experimental research will be presented to exemplify research opportunities in this area.

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