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Web-231: Discussion Board 4.1

11/7/2022

The Bohm-Jacopini Theorem

In 1966, Corrado Böhm and Giuseppe Jacopini created a theorem. The Bohm-Jacopini Theorem is also known as the Structure Theorem Definition. It states that an entire computer program can be broken down into three structured parts with each part performing a task. If a large action is broken down into smaller parts, it becomes “easier” for the computer to run the program and the user gets results faster. Each smaller part of the program is called a subprogram. In the Bohm-Jacopini Theorem there are three ways to break up the program. They are sequence structure, selection structure, and loop or iteration structure. In the sequence structure each statement occurs in the order they are written in from top to bottom. Sequence structure is usually used to perform basic tasks like displaying information or to receive information. The second subprogram is selection structure. This is when the flow of the program depends on a choice between two things. The key word used is IF implemented in two ways, IF alone and IF…ELSE. The final subprogram is loop or iteration structure. When the program repeats steps based on a condition the loop or iteration structure is used. Key words include WHILE, DO WHILE, END WHILE, SWITCH case. “To review, sequence performs some operations S1; S2 meaning perform S1; then perform S2. Selection says, if Q is true, then perform S1, else perform S2. Loop says while Q is true, do S.” (Schlegel, 2011)

Resources:

Chegg Inc. (n.d.). *Structure theorem*. Learn About Structure Theorem | Chegg.com. Retrieved November 7, 2022, from <https://www.chegg.com/learn/computer-science/computer-software/structure-theorem>

Schlegel, D. R. (2011). The Böhm-Jacopini theorem and an introduction to structured programming with python. Retrieved November 7, 2022, from <http://danielschlegel.org/teaching/111/lecture5.html>