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HW1

1. Figure 1.4 shows a program written in language L. It is sent to an interpreter that interprets the language in LO. The interpreter is implemented in LO and interprets all the instructions sent by the program written in L. The program is then executed on the machine MO. This is called a purely interpreted implementation.

Figure 1.5 shows a program written in L being sent to a compiler written in LO. The compiler translates the code from L to LO. After the compiler translates the code, it can be executed along with any input data that is needed. It is then executed on the machine MO. This is called purely compiled implementation.

Figure 1.6 shows a program implementation with an intermediate machine. The programs are written in L and compiled into an intermediate language Li. Then these complied languages are executed by the interpreter written in LO. It now accepts any input data and is executed on the machine MO.

1. I am most familiar with C++ which is known as a very controllable language. This language is compiled and translated into machine code to be later executed. I am then fairly familiar with Python which, as I understand it, is a purely interpreted language. This language does not need to be compiled and can be interpreted and executed directly.

**Program 1**

fun main()

print("This program will take user submitted numbers and calculate the average\n");

var flag: bool = true;

var sum: int = 0;

var average = 0.0;

var totalNums = 0;

while flag do

print("Please insert a number: ");

var num = readi();

set sum = sum + num;

set totalNums = totalNums + 1;

print("would you like to insert another number? (Y/N)");

var answer = reads();

if answer = N then

set flag = false;

else

set flag = true;

end

end

set average = sum / totalNums;

print("Here is your average: ");

print(average);

end

**Program 2**

func main()

print("This program will determine how many letters are in your input.");

print("Please enter a word or phrase: ");

var input = reads();

var n = length(input);

print("There were ");

print(n);

print(" characters in your input (including spaces).");

end

**Program 3**

struct ClassList

var name = "";

var id = "";

var grade = 0;

end

func main()

print("This program will allow professors to create a database for their students' grades");

var newStudent = new ClassList;

print("Please insert a name: ");

var newStudent.name = reads();

print("Please insert their ID: ");

var newStudent.id = readi();

print("Please insert their grade: ");

var newStudent.grade = readi();

end

1. 1) Is there a built in function for randomization?

2) Can you print both text and variables to the console at the same time on the same line?

3) Can you create arrays/lists of multiple dimensions like you can in Python?