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| Data Dictionary for SimpleTron.h |
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The SML Virtual Machine

An SML machine has a virtual memory capable of storing 1000 6-digit numbers, including variables and constants. It has an Accumulator and a Float Accumulator to hold the values currently being processed. In addition there is an instructionCounter to keep track of the location in Memory of the current instruction, which is loaded into the instructionRegister.

SML instructions are 6 digits long with the first two digits representing the Operation codes, and the remaining digits a position in Memory. The maximum length of an SML integer is 6 digits, 12 digits for a float, and the only restriction upon String length is the amount of Memory space available.

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| **Defines** | | |
| **Name** | **Value** | **Description** |
| PAUSE | system("pause") | Used to pause the running of the program. Note this is Windows command line specific, rendering it non-portable. An idea would be to do a system check upon loading the program, and implementing a Linux version etc.. Or to just write a simple function to simulate the Pause command, using getc for example. |
| CLEARSCREEN | system("cls") | Used to clear the screen. Another System dependent command (\* see entry for PAUSE above.) |
| MEMORYSIZE | 1000 | Used to define the size of the SML Machines Virtual Memory. |
| WORDLENGTH | 9 | Used to restrict the number of characters which can be entered during the reading in of integers and instructions.(Integers and instructions can only be 6 characters long but 9 allows them to be signed, null terminated, and allows input of the sentinel value used to signal the end of inputting instructions from the command line.) |
| MAXFLOATLEN | 15 | Used to restrict the number of characters which can be entered during the reading in of floats (allowing them to signed, plus two additional characters for the decimal point and the terminating null byte). |
| MAXSTRINGLEN | MEMORYSIZE/2 | Used to restrict the number of characters which can be entered during the reading in of strings. |
| LINELENGTH | 100 | Used to restrict the length of lines of SML source code read in from a file. |

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| **Global Variables** | | |
| **Name** | **Type** | **Description** |
| MEMORY | Int array | Used to store all of the instructions, variables and constants necessary to running an SML program. |
| ACCUMULATOR | Int | Used to hold the integer value currently being processed. |
| FLTACCUMULATOR | Float | Used to hold the float value currently being processed. |
| INSTRUCTIONCOUNTER | Int | Used to keep track of the location in Memory of the current instruction. |
| INSTRUCTIONREGISTER | Int | Used to hold the current instruction. |
| OPERATIONCODE | Int | Used to hold the Operation code of the instruction currently loaded into the Instruction Register. |
| OPERAND | Int | Used to hold the value of last 4 digits of the instruction currently loaded into the Instruction Register. This usually is a memory address. |
| INTROTEXT | const char \* | Used to hold the Welcome Message shown to the user upon starting the program. |
| MENU | const char \* | Used to hold the menu displayed to the user during program execution. |
| OPCODELIST | const char \* | Used to hold the List of Opcodes displayed to the user after she selects option 6 from the Menu. |