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var.h

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/*****
 * File: var.h          Project by: David Hodgdon *
 * Class: ECE476       Instructor: Bruce Land   *
 *****/
#ifndef VAR_H
#define VAR_H
#define MAXSTR 30
// pass in variable (with matching identifier), dimension of array,
// and indices (all three required) and it will tell you if variable is a match
#define ARRAYIDENTCHECK(VAR, NUM, X, Y, Z) ( (NUM==3&&(VAR->i1==X && VAR->i2==Y
&& VAR->i3==Z)) || (NUM==2 && (VAR->i1==X && VAR->i2==Y)) || (NUM==1 && (VAR->i1
==X)) || NUM==0 )
#define ARRAYIDENTSET(VAR, X, Y, Z) {\
    VAR->x=X;\
    VAR->y=Y;\
    VAR->z=Z;\
}
enum VarType{Integer=0, Real=1, String=2, IntegerArray=4, RealArray=5, StringArr
ay=6, InvalidType=8};

struct VarDesc{
    enum VarType type;
    char ident[3];      // variable name
    char i1;            // array index 1
    char i2;            // array index 2
    char i3;            // array index 3
    char* str;          // string if string type
    unsigned char len;  // length if string type
    int intVal;         // integer value
    float realVal;      // real value
    struct VarDesc* next; // pointer to next
    struct VarDesc* prev; // pointer to previous
    char isTemp;        // 1=temp, 0=variable
};
typedef struct VarDesc* Var;

void VarDestroyVar(Var v);
void VarInit();
Var VarNewVar(enum VarType type, char * ident, char i1, char i2, char i3, char i
sTemp);
Var VarGetVar(char* str, char num, char i1, char i2, char i3, Var head, Var tail
, enum VarType varType);
void VarNewStr(Var v, unsigned char size);
void xfree(char * ptr);
#endif

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