Validator

calculator *connected_calculator
calc_preprocessor *connected_preprocessor

Validates
equations
in calculators

Calculator Manager

ulist<calc_object> calc_list
calc_object *current_calc
calc_preprocessor *preprocessor
validator *equation_checker

Preprocess
calculator
order

Returns user
names found
in string

Calc_preprocessor

token_name *correlator
string_class inverse_correlator[256]
int array_length
istrstream *input_stream
char *input_char_array

Manages
Calculator List

Ulist<calc_object>

string_class identifier
calculator data
calc_object *next_calc_object

Postprocess equation
strings for display

Points to target
calculator in list

calc_object

string_class identifier
calculator data
calc_object *next_calc_object

Provides equations
from equation list
for validation

Stores Data
Field

Stores Index
Field

calculator

static int math_function_array_initialised
static double (*math_func[256]) (double)
static char terminator_table[256]
static const token_value terminator_tokens[15]
validator *equation_checker
int *number_of_errors
calculator_type rank
calculator_symbol current_symbol
int binding_segment
ulist<name_object> *var_list
ulist<name_object> *equation_list
istrstream *input_stream
ostrstream *error_stream
char *input_char_array
char *error_string
int auto_verify

static const token_name token_names[50]
static ulist<name_object> constant_list
static int ERROR_STREAM_SIZE

String_Class

int length
char *letters

Maps operation name
to calculator token

2 + 1 static (constant list)

Stores current
token read in

token_name

string_class name
char token

Ulist<name_object>

string_class name
complex_container list
name_object *next_name_object

Variable &
Equation &
Constant lists

calculator_symbol

token_value token
complex number_value
string_class name_string

Operation
Name

String_Class

int length
char *letters

Stores Index
Field

String_Class

int length
char *letters

Stores Data
Field

complex_container

macro_type indicator
complex complex_number
string_class equation
static calc_preprocessor *postprocessing

Stores Equation Expression

String_Class

int length
char *letters

Figure 11: Calculator Manager Design