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%macro mu_check_req_parameters(
  parameters_to_check =
,help =
,debug =
) / store SOURCE des='V1.0.0.3';
%*****
FILENAME: MU_CHECK_REQ_PARAMETER.SAS
DEVELOPER: (b) (6)
PLATFORM: 9.2+
DATE: 20120225
PURPOSE: This macro should be called within another macro ("parent macro") to check
if
    the parent macro has required parameters that are null. If a particular
parameter
    is null, this macro will issue an alert and abort.
NOTE:
MACROS USED: mu_help_debug, mu_wordscan

PARAMETERS:

PARAMETER_TO_CHECK = the parent macro parameter(s) to be checked to see if they are
null.
    If a particular parent macro parameter is null, this macro will issue an
alert and abort.
    (REQUIRED)

MODIFIED BY:          DATE:
%*****;

%global MU_CHECK_REQ_PARAMETERS_RC;
%let MU_CHECK_REQ_PARAMETERS_RC = 0;
%local i;
%mu_help_debug;

%***** get current setting of mprint;
%let mprint_setting = %sysfunc(getoption(mprint));
%if &debug = Y %then %do;
    options mprint ;
%end;

%* check if parameters are populated;

%if "&parameters_to_check" eq "" %then %do;
    %put ALERT_P: Parameter PARAMETERS_TO_CHECK is missing.  Program will
ABORT.;
    %let MU_CHECK_REQ_PARAMETERS_RC = 1;
%end;

%else %do;
    %mu_wordscan(string=&parameters_to_check, root=param, numw=num_param,

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delim=%str( ));

    %do i = 1 %to &num_param;
        data _null_;
            call symput("parm&i","|| "&&param&i");
        run;
        %if %substr(%upcase(&help),1,1) = Y and "&&parm&i" ne "" %then %do;
            %put &SYSMACRONAME - Value of parameter &&param&i is
&&parm&i;
        %end;
        %if "&&parm&i" eq "" %then %do;
            %put &SYSMACRONAME - Value of Parameter &&param&i is null.;
            %let MU_CHECK_REQ_PARAMETERS_RC =
&eval(&MU_CHECK_REQ_PARAMETERS_RC + 1);
        %end;
    %end;
%end;

%PUT ----- ;
%PUT MU_CHECK_REQ_PARAMETERS_RC = &MU_CHECK_REQ_PARAMETERS_RC;
%PUT ----- ;

%if &MU_CHECK_REQ_PARAMETERS_RC > 0 %then %do;
    %if "&parameters_to_check" ne "" %then %do;
        %put ALERT_P: &SYSMACRONAME - At least one of the required
parameters is null.;
        %put ALERT_P: &SYSMACRONAME - Program will ABORT.;
    %end;

    data _null_;
        abort;
    run;
%end;

options &mprint_setting ;

%mend mu_check_req_parameters;

```