Help

```
#if defined(PremiaCurrentVersion) && PremiaCurrentVersion < (2008+2) //The "#els
#else
/*****************************************************
*   CPS - A simple C PDE solver                      *
*                                                    *
*   Copyright (c) 2007,                              *
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*                                                    *
*****************************************************/
#include "cps_stencil.h"
#include "cps_stencil_pattern.h"
#include "cps_assertions.h"
#include "cps_utils.h"

int stencil_pattern_create(stencil_pattern **s)
{

  STANDARD_CREATE(s, stencil_pattern);

  return OK;
}

int stencil_pattern_destroy(stencil_pattern **s)
{

  int k;
  stencil_application *sapp;

  for (k = 0; k < MAX_STENCIL_SIZE; k++)
    {
      sapp = (*s)->application[k];
      if (sapp)
        {
          stencil_application_destroy(&sapp);
        }
    }
```

```
  STANDARD_DESTROY(s);
  return OK;
}

int stencil_pattern_put(stencil_pattern *s, unsigned int entry, stencil_applicat
{
  /* put a couple (pos,value) at entry */
  REQUIRE("stencil_pattern_not_null", s != NULL);
  REQUIRE("valid_entry", entry >= 0 && entry < MAX_STENCIL_SIZE);

  s->application[entry] = sapp;
  s->count++;
  return OK;
}

int stencil_pattern_item(const stencil_pattern *s, stencil_application **sapp)
{
  /* get a couple (pos,value) stored at entry */
  REQUIRE("stencil_pattern_not_null", s != NULL);
  REQUIRE("valid_cursor", s->cursor >= 0 && s->cursor < MAX_STENCIL_SIZE);

  *sapp = s->application[s->cursor];

  ENSURE("result_not_null", (*sapp) != NULL);
  return OK;
}

int stencil_pattern_start(stencil_pattern *s)
{
  /* set cursor at first element not null */
  REQUIRE("stencil_pattern_not_null", s != NULL);

  s->cursor = 0;

  while (!stencil_pattern_after(s) && (s->application[s->cursor] == NULL))
    {
      stencil_pattern_forth(s);
    }
  return OK;
}
```

```
int stencil_pattern_after(const stencil_pattern *s)
{
  /* is cursor at end */
  REQUIRE("stencil_pattern_not_null", s != NULL);
  return (s->cursor >= MAX_STENCIL_SIZE);
}

int stencil_pattern_forth(stencil_pattern *s)
{
  /* move cursor forth till next not-null element is found */
  REQUIRE("stencil_pattern_not_null", s != NULL);
  REQUIRE("not_after", !stencil_pattern_after(s));

  do
    {
      s->cursor = s->cursor + 1;
    }
  while (!(stencil_pattern_after(s)) && (s->application[s->cursor] == NULL));

  return OK;
}

int stencil_application_create(stencil_application **sapp)
{

  STANDARD_CREATE(sapp, stencil_application);
  return OK;
}

int stencil_application_destroy(stencil_application **sapp)
{

  STANDARD_DESTROY(sapp);
  return OK;
}

int stencil_application_is_internal(const stencil_application *sapp)
{
  /* is application inside current grid limits ? */
  REQUIRE("stencil_application_not_null", sapp != NULL);
```

```
  return (sapp->grid_location == GLOC_INTERNAL);
}

int stencil_application_is_external(const stencil_application *sapp)
{
  /* is application outside current grid limits ? */
  REQUIRE("stencil_application_not_null", sapp != NULL);

  return (sapp->grid_location == GLOC_EXTERNAL);
}

int stencil_application_is_boundary(const stencil_application *sapp)
{
  /* is application on boundary ? */
  REQUIRE("stencil_application_not_null", sapp != NULL);

  return (sapp->grid_location == GLOC_BOUNDARY);
}

int stencil_application_set_internal(stencil_application *sapp)
{
  REQUIRE("stencil_application_not_null", sapp != NULL);

  sapp->grid_location = GLOC_INTERNAL;
  return OK;
}

int stencil_application_set_external(stencil_application *sapp)
{
  REQUIRE("stencil_application_not_null", sapp != NULL);

  sapp->grid_location = GLOC_EXTERNAL;
  return OK;
}

int stencil_application_set_boundary(stencil_application *sapp)
{
  REQUIRE("stencil_application_not_null", sapp != NULL);

  sapp->grid_location = GLOC_BOUNDARY;
  return OK;
```

```
}

int stencil_application_set_order(stencil_application *sapp, unsigned int ord)
{
  REQUIRE("stencil_application_not_null", sapp != NULL);

  sapp->order = ord;
  return OK;
}
/* end -- stencil_pattern.c */

#endif //PremiaCurrentVersion
```