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/* ANRC RHKI */
/* Lab16: KObject Example */
#include <linux/kobject.h>
#include <linux/string.h>
#include <linux/sysfs.h>
#include <linux/module.h>
#include <linux/init.h>

#define DRIVER_AUTHOR    "ANRC"
#define DRIVER_DESC      "Lab16"

MODULE_LICENSE("GPL");           // Get rid of taint message by declaring code as GPL.

/* Or with defines, like this: */
MODULE_AUTHOR(DRIVER_AUTHOR);    // Who wrote this module?
MODULE_DESCRIPTION(DRIVER_DESC); // What does this module do?

static int anrc_int1;
static int anrc_int2;

static ssize_t anrc_read_int(struct kobject *kobj, struct kobj_attribute *attr, char *buf)
{
    int var;

    if (strcmp(attr->attr.name, "anrc_int1") == 0)
        var = anrc_int1;
    else
        var = anrc_int2;
    return sprintf(buf, "%d\n", var);
}

static ssize_t anrc_write_int(struct kobject *kobj, struct kobj_attribute *attr, const char *buf, size_t count)
{
    int var;

    sscanf(buf, "%du", &var);
    if (strcmp(attr->attr.name, "anrc_int1") == 0)
        anrc_int1 = var;
    else
        anrc_int2 = var;

    return count;
}

static struct kobj_attribute anrc_int1_attribute = __ATTR(anrc_int1, 0666, anrc_read_int, anrc_write_int);
static struct kobj_attribute anrc_int2_attribute = __ATTR(anrc_int2, 0666, anrc_read_int, anrc_write_int);

/* Create a group of attributes so that we can create and destroy them at the same time. */

static struct attribute *attrs[] = {
    &anrc_int1_attribute.attr,
    &anrc_int2_attribute.attr,
    NULL, /* need to NULL terminate the list of attributes */
};

/*
 * An unnamed attribute group will put all of the attributes directly in
 * the kobject directory. If we specify a name, a subdirectory will be
 * created for the attributes with the directory being the name of the
 * attribute group.
 */
static struct attribute_group attr_group = {
    .attrs = attrs,
};

static struct kobject *example_kobj;

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```
int init(void);
void cleanup(void);

int init(void)
{
    int retval;

    /*
     * Create a simple kobject with the name of "kobject_example",
     * located under /sys/kernel/
     *
     * As this is a simple directory, no uevent will be sent to
     * userspace. That is why this function should not be used for
     * any type of dynamic kobjects, where the name and number are
     * not known ahead of time.
     */
    example_kobj = kobject_create_and_add("kobject_example", kernel_kobj);
    if (!example_kobj)
        return -ENOMEM;

    /* Create the files associated with this kobject */
    retval = sysfs_create_group(example_kobj, &attr_group);
    if (retval)
        kobject_put(example_kobj);

    return retval;
}

void cleanup(void)
{
    kobject_put(example_kobj);
}

module_init(init);
module_exit(cleanup);
```