Write a C program that creates an array of students on the heap and uses a function pointer to let the user choose whether to search the students by name or by ID.

Use these #includes:

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

Use this struct definition:

```
struct student{
    char name[10];
    int id;
    double gpa;
};
```

You may put the struct definition, function prototypes, and code for the functions in one .c file for simplicity in this assignment.

Write the following functions:

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*void show_student(struct student *curr, int index)*

shows output for the student at the specified index

*int search_by_name(struct student *students, int length)*

- asks the user for a student name (use scanf; you may need to use getchar() to dispose of a linefeed left in input by previous input
- searches the array for a student with that name. If a student is found, return the array index. Otherwise return -1.

*int search_by_id(struct student *students, int length)*

like search_by_name, but searches by id

int main(void)

- creates an array of 4 students on the heal (use malloc) and hard codes values for their names, ids, and gpas. Use the string function strcpy to set the name of each student, like this: strcpy(curr->name, "Fred");
- asks the user to choose search_by_name or search_by_id, sets the function pointer to the correct function, and calls the function
- if the search function returns -1, shows that no student was found, otherwise uses the return value of the function to call show_student to show data for that student.

Here is sample output from several runs of my solution:

Enter n for search by name or i for search by ID:

n

Enter the name to search for:

Fred

Fred has id 1 and gpa 2.23

Enter n for search by name or i for search by ID:

n

Enter the name to search for:

Groucho

Not found

Enter n for search by name or i for search by ID:

i

Enter the id to search for:

2

Wilma has id 2 and gpa 3.65