

Structure:

StudentNode

ID (float)

name (string)

gpa (double)

next (pointer to StudentNode)

Functions:

createLinkedList(listHead)

If listHead is not null, print "List already created!"

Else, create a *dummy* head node with null values and assign it to listHead

addStudent(listHead, ID, name, gpa)

If listHead is null, print "Please create the list first."

Else, create a new student node with the given data

If listHead is null, set listHead to the new node

Else, traverse the list to find the last node and append the new node

`deleteStudent(listHead, ID)`

If listHead is null, print "List is empty. Nothing to delete."

If the ID to delete is at the head, update listHead to the next node and delete the head

Else, traverse the list to find the node with the ID and remove it

`displayStudents(listHead)`

If listHead is null, print "List is empty."

Else, traverse the list and print the data of each node

`modifyStudent(listHead, ID, newName, newGpa)`

Traverse the list to find the node with the given ID

If found, update its name and gpa

Else, print "Student with ID not found."

`purgeList(listHead)`

While listHead is not null, remove the head node and assign listHead to the next node

`searchStudent(listHead, ID)`

Traverse the list to find the node with the given ID

If found, print its data

Else, print "Student with ID not found."

`idExists(listHead, ID)`

Traverse the list to check if a node with the given ID exists

Main Program:

Create a variable `listHead` and initialize it to null

In a loop:

Display a menu of options (create, add, delete, display, modify, purge, search, exit)

Prompt the user to choose an option

Call the corresponding function based on the user's choice

If the user chooses to exit, purge the list and exit the program