stillenty),

```
Source code ! -
# Include williams
# Ynitude Lstaffb h>
# Prillude (shifing h)
Shuct student (
Pht Pd:
 char name[50]:
 char department [50];
float gpa;
struct student # Prev:
Struct student & next;
3:
```

Chryst student * head = NULL

1) Function to create a new student node

Struct Student * createstudent (Portel, char name (), chardept , froat gra) (struct student * new student = (struct student *) malloc(street struct newstudent -> 9d = 9d; stropy (newshadent-) name, name). stropy (newshident) department , dept). newshelpnt-) apa= apanewshidenlypre knull newhaten H) next = NULL return newstudent;

```
"Insert newshelent
  vold Priest student (Pard, charame [], chardept ? Roaf grade
      struct student & newstudent = arake student (Pd, name, dept, gra)
     OF (head = NULL) (
         head : newswhent
     else L
          struct stident * trmp : head :
          Public (temp=next I NULL)
                timp : timp snext)
              temponest newshident,
             newshident -) Prev = kmp;
            piPntf (" student record Poserted in ");
        3
// Delete student by ID
vold delekstudent (Portd) (
     struct student #temp = head;
     While (timp) = NULL 28 timp - 29d 1=8d4
          temp = temp = Next;
      97 (temp=NULL)X
           printf ("student I Dnot found ");
           refurn ;
       4
       of (temp) previenul temp) prev snext temp) next;
       Pf (temp) next! = NULL temp ) next + prev = temp -) prev.
       of ( temp == head) head = temp -) next;
```

```
free (temp);
 pRotf ("student record deletedin")
I sparch by ID or Name
 vord search student (char key []) 2
        struct student * temp=head;
        9nt found = 0:
        Whole (kmp!=NOLL) &
           char 9Hsh (20):
           spiralf ( rdstr) "7d, kmp-rd);
           9f (shamp (Pdsh, key == 0 11 shamp (famp) name, key)=014
                piPritt ("found: 10%d, Name=15, Dept 75, GPA=12+In",
                  temp >9d , kmp - name, temp - department, kmp + gpa).
               foundel:
           temp= kmp=next:
      9f(! found) print f("Mostudent found in");
108 play allneeds
vold applaystudents
     struct student * kmp=head,
           9f (frmp == NULL) {
               printf ("No record found In")
              reform;
          3
```

```
Printig in skalentiferood in").
  WHITE (fompl=NULL)
     pANIF(IID = "9. d. Marres/s. Dept = 725, GPA= % offi
            temp of de temp + name , temp) department , temp + gra);
     temp=temp=temp=next
 1 Reverse daplar
  vold display Revenee!
      of thead == NULLX
         prantf / "No records food will
         refuter
 shoot shedent temp = head;
 NAME (Amp) next 1= NULL temp= temp) next:
 printf ("In Reverse order Recordin")
 while (trmp1=NULL)X
          pantf ("IDad, Name Y.S, Dept = %5, GPA Y. - 2f In")
                 tempored, temp - name, temp + department, tempogra);
            temp=temp=prev
Actone 18+
shud shulent clonel9+UK
```

Of Chead = - NULL) return NULL ;

```
Short shallent newhood MULL * hard - MULL * hard - head
    Note [ lever] - MULL
              short short newshort = creakshort (frmp-) 8 1kmp-rane,
                                                 temp department, tempagie)
   Pf (newnode = : NULL X
      hewheld newskdent
      fall newHead 4
   che &
       tall ) next = newshident!
       newsholent > Arv=ta9);
       tapl = newshident.
     Amp=kmp=next
    prantf ("18t cloned successfully in")
    refurn new Necol
1 Calculate a verage GPA
     vold average GPA() X
           shuf shident & kmp = head;
           of (Remp== NULL)X
                prentf ("No records to calculate GPA In")
                return;
        float sum=0.
        Pot rount 0;
```

WHPIE (temp) = NULL) A

```
SUM + : Hermpagiza
count to
large trop s nect
phint it Average GPA X2 F In John (round),
1 Menu differ Program
 9nt monne
 ant chare, et;
  char name [50], dept [50], key [50]:
  float gpa:
   short student *backup=NULL;
  Wiffle (1) 4
      printf ("In = = : student Record management == \n");
     print (" I miest student inz Delete sudent ins Search student inc DaplayAllyn'),
     printf ("5 D8play Revelle in 6-11 one 194 in 7. Avriage GPAINS Existin");
     pintf("Entrihore");
    Scanf ("Tid; LichaPIP),
    getchar();
  switch (chare)4
 conf is
       proff("Entr ID");
      Start ("7.d", 28d):
     getchar()!
```

printfl "Enkroame")

Tych (nume street marre) uldin) name (shippiname,"in ") a printf("Inter Department "); figeb (depti streoffdept), stain) dept [stopnidept, " in ")]=0 printf("Enter UPA: ") scant (1749, 29 pas) Prisets hident (Pd, rame deptig put breat rayest bifulf (" Enky ID to deleke"): scant (47d), 29d); delekshident (Pd) brak' case 3 printf ("Enkr Id or Name to rearch"); lyeb (Kex, strzeof (Key), stdin); Key[shcspn(Keyi" In")]=0; search shedent E key ! break! wer daplarShdent; cases: daphyReveners break ' rases park p= (lone 19tt):

```
break
Care 7
  a unagelina
 break,
raies:
   panta" Exting vi)
    ex (0)
 defaute
  pand" Invalid choke ")
returno"
```

```
C: > Users > jo143 > Desktop > C StudentAcademicRecordSystem.c > 😚 deleteStudent(int)
       int main() {
          while (1) {
152
159
               switch (choice) {
               case 1:
                   printf("Enter ID: ");
                   scanf("%d", &id);
164
                   getchar();
                   printf("Enter Name: ");
                   fgets(name, sizeof(name), stdin);
                   name[strcspn(name, "\n")] = 0;
                   printf("Enter Department: ");
                   fgets(dept, sizeof(dept), stdin);
                   dept[strcspn(dept, "\n")] = 0;
170
                   printf("Enter GPA: ");
171
                   scanf("%f", &gpa);
172
                   insertStudent(id, name, dept, gpa);
                   break;
               case 2:
                   nrintf("Enter ID to delete. ").
PROBLEMS
          OUTPUT
                   DEBUG CONSOLE
                                 TERMINAL
                                           PORTS
micRecordSystem }
==== Student Record Management System =====
1. Insert Student
Delete Student
3. Search Student
4. Display All
5. Display Reverse
6. Clone List
7. Average GPA
8. Exit
Enter choice: 1
Enter ID: Joshua
```

Enter Name: Enter Department: cse

Student record inserted.

Enter GPA: 10

```
StudentAcademicRecordSystem.c ×
C: > Users > jo143 > Desktop > C StudentAcademicRecordSystem.c > 🕅 deleteStudent(int)
       int main() {
146
           while (1) {
152
159
               switch (choice) {
               case 1:
161
                   printf("Enter ID: ");
162
                    scanf("%d", &id);
163
                   getchar();
164
                   printf("Enter Name: ");
165
                   fgets(name, sizeof(name), stdin);
166
                   name[strcspn(name, "\n")] = 0;
167
                   printf("Enter Department: ");
168
                   fgets(dept, sizeof(dept), stdin);
169
                   dept[strcspn(dept, "\n")] = 0;
170
                   printf("Enter GPA: ");
171
                    scanf("%f", &gpa);
172
                    insertStudent(id, name, dept, gpa);
173
174
                   break;
175
               case 2:
176
                   nrintf("Enter ID to delete: ").
PROBLEMS
           OUTPUT
                   DEBUG CONSOLE
                                   TERMINAL
                                             PORTS
==== Student Record Management System =====
1. Insert Student
Delete Student
3. Search Student
4. Display All
Display Reverse
6. Clone List
7. Average GPA
8. Exit
Enter choice: 2
Enter ID to delete: Joshua
Student record deleted.
```

```
-jo i 43 🖊 Desktop 🖊 🍆 StudentAcademickecordSystem.c
      int main() {
146
          while (1) {
152
159
               switch (choice) {
160
161
               case 1:
                   printf("Enter ID: ");
162
                   scanf("%d", &id);
163
                   getchar();
164
                   printf("Enter Name: ");
165
                   fgets(name, sizeof(name), stdin);
166
                   name[strcspn(name, "\n")] = 0;
167
                   printf("Enter Department: ");
168
                   fgets(dept, sizeof(dept), stdin);
169
                   dept[strcspn(dept, "\n")] = 0;
170
                   printf("Enter GPA: ");
171
                   scanf("%f", &gpa);
172
                   insertStudent(id, name, dept, gpa);
173
                   break;
174
175
               case 2:
                   nrintf("Enter ID to delete: ").
176
PROBLEMS
          OUTPUT
                   DEBUG CONSOLE
                                  TERMINAL
                                             PORTS
==== Student Record Management System =====

    Insert Student

2. Delete Student
```

- 3. Search Student
- 4. Display All
- 5. Display Reverse
- 6. Clone List
- 7. Average GPA
- 8. Exit

Enter choice: Enter ID to delete: Student ID not found.

```
while (1) {
152
159
               switch (choice) {
160
161
               case 1:
                   printf("Enter ID: ");
162
                   scanf("%d", &id);
163
                   getchar();
164
                   printf("Enter Name: ");
165
                   fgets(name, sizeof(name), stdin);
166
                   name[strcspn(name, "\n")] = 0;
167
                   printf("Enter Department: ");
168
                   fgets(dept, sizeof(dept), stdin);
169
                   dept[strcspn(dept, "\n")] = 0;
170
                   printf("Enter GPA: ");
171
                   scanf("%f", &gpa);
172
173
                   insertStudent(id, name, dept, gpa);
                   break;
174
175
               case 2:
                   nrintf("Enter ID to delete. ").
176
PROBLEMS
          OUTPUT
                   DEBUG CONSOLE
                                  TERMINAL
                                            PORTS
==== Student Record Management System =====

    Insert Student

2. Delete Student
3. Search Student
4. Display All
5. Display Reverse
6. Clone List
7. Average GPA
8. Fxit
```

Enter choice: 4

No records found.

```
C: > Users > jo143 > Desktop > C StudentAcademicRecordSystem.c > 😭 main()
       int main() {
146
           while (1) {
152
159
               switch (choice) {
160
161
               case 1:
                   printf("Enter ID: ");
162
                   scanf("%d", &id);
163
                   getchar();
164
                   printf("Enter Name: ");
165
                   fgets(name, sizeof(name), stdin);
166
                   name[strcspn(name, "\n")] = 0;
167
                   printf("Enter Department: ");
168
                   fgets(dept, sizeof(dept), stdin);
169
                   dept[strcspn(dept, "\n")] = 0;
170
                   printf("Enter GPA: ");
171
                   scanf("%f", &gpa);
172
                   insertStudent(id, name, dept, gpa);
173
174
                   break;
175
               case 2:
                   nrintf("Enter ID to delete: ").
176
                   DEBUG CONSOLE TERMINAL
PROBLEMS
           OUTPUT
                                             PORTS
==== Student Record Management System =====
1. Insert Student
Delete Student
Search Student
4. Display All
```

5. Display Reverse

6. Clone List

7. Average GPA

Enter choice: 5

No records found.

8. Exit

```
C: > Users > jo143 > Desktop > C StudentAcademicRecordSystem.c > 😚 main()
       int main() {
146
           while (1) {
152
159
                switch (choice) {
160
161
               case 1:
                    printf("Enter ID: ");
162
                    scanf("%d", &id);
163
                    getchar();
164
                    printf("Enter Name: ");
165
                    fgets(name, sizeof(name), stdin);
166
                    name[strcspn(name, "\n")] = 0;
167
                    printf("Enter Department: ");
168
                    fgets(dept, sizeof(dept), stdin);
169
                    dept[strcspn(dept, "\n")] = 0;
170
                    printf("Enter GPA: ");
171
                    scanf("%f", &gpa);
172
                    insertStudent(id, name, dept, gpa);
173
                    break;
174
175
               case 2:
                    nrintf("Enter ID to delete. ").
176
PROBLEMS
           OUTPUT DEBUG CONSOLE
                                   TERMINAL
                                             PORTS
```

No records found.

```
    Insert Student
    Delete Student
    Search Student
    Display All
    Display Reverse
    Clone List
    Average GPA
    Exit
    Enter choice: 7
    No records to calculate GPA.
```

==== Student Record Management System =====

GitHub link

https://github.com/JoshDev-X/Code-Vault.git