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CODE:

```
#include <iostream>
#include <string>
using namespace std;

class School
{
private:
   struct Student
          {
      int student_id;
      string name;
      int grade;
      Student* next;
   };

   struct Admission
          {
      int student_id;
      string name;
      Admission* next;
```

```
};

Student* head;
Admission* front;
Admission* rear;

public:
School()
        {
   head = NULL;
   front = NULL;
   rear = NULL;
}
 void Register (int student_id, string name, int grade)
        {
   Student* new_student = new Student;
   new_student->student_id = student_id;
   new_student->name = name;
   new_student->grade = grade;
   new_student->next = NULL;

   if (head == NULL)
                {
      head = new_student;
   }
          else
                {
      Student* current = head;
      while (current->next != NULL)
                        {
         current = current->next;
```

```
        }
        current->next = new_student;
    }
    cout << "Student registered successfully!" << endl;
}
void Register(int student_id, string name, int grade, int exam_score)
        {

double fee_reduction = 0.0;
if (exam_score >= 90)
        {
    fee_reduction = 0.2;
} else if (exam_score >= 80)
        {
    fee_reduction = 0.15;
} else if (exam_score >= 70)
        {
    fee_reduction = 0.1;
}



Student* new_student = new Student;
new_student->student_id = student_id;
new_student->name = name;
new_student->grade = grade;
new_student->next = NULL;

if (head == NULL)
        {
    head = new_student;
}
```

```
        else
        {
    Student* current = head;
    while (current->next != NULL)
                {
      current = current->next;
    }
    current->next = new_student;
  }

  cout << "Student registered successfully with fee reduction of " << (fee_reduction * 100) << "%!"
<< endl;
}

  void Show()
        {
         cout<<endl;
  if (head ==  NULL)
        {
    cout << "Registry is empty,Nothing to display." << endl;
    return;
  }

  Student* current = head;
  while (current !=  NULL)
        {
    cout << "ID: " << current->student_id<<endl <<"Name: " << current->name <<endl<< "Grade: "
<< current->grade << endl;
    current = current->next;
  }
  }
```

```
  void SearchStudent(int student_id)
        {
    Student* current = head;
    while (current != NULL)
                {
      if (current->student_id == student_id)
                        {
          cout << "Found ID: " <<current->student_id<<endl << "Name: " << current->name <<endl
<<"Grade: " << current->grade << endl;
          return;
        }
        current = current->next;
    }
    cout << "Student not found!" << endl;
  }

  void Delete(int student_id)
        {
    Student* current = head;
    Student* previous = NULL;
    while (current != NULL)
                {
      if (current->student_id == student_id)
                        {
        if (previous != NULL)
                                {
          previous->next = current->next;
        }
                                else
                                {
```

```
            head = current->next;
        }
        delete current;
        cout << "Student removed successfully!" << endl;
        return;
      }
      previous = current;
      current = current->next;
   }
   cout << "Student not found!" << endl;
}

void AddApplication(int student_id, string name)
       {
   Admission* new_admission = new Admission;
   new_admission->student_id = student_id;
   new_admission->name = name;
   new_admission->next = NULL;

   if (rear == NULL)
                {
      front = rear = new_admission;
   }
                else
                {
      rear->next = new_admission;
      rear = new_admission;
   }
   cout << "Application added successfully!" << endl;
}
```

```
void Process(int grade)
        {
   if (front == NULL)
                {
      cout << "No applications to process!" << endl;
      return;
   }
   Admission* temp = front;
   Register (temp->student_id, temp->name, grade);
   front = front->next;
   if (front == NULL)
                {
      rear = NULL;
   }
   delete temp;
   cout << "Application processed and student registered successfully!" << endl;
}

void ShowApplication()
        {
   Admission* current = front;
   while (current != NULL)
                {
      cout << "ID: " <<endl<< current->student_id <<endl<< "Name: " << current->name << endl;
      current = current->next;
   }
}

~School()
        {
   while (head != NULL)
```

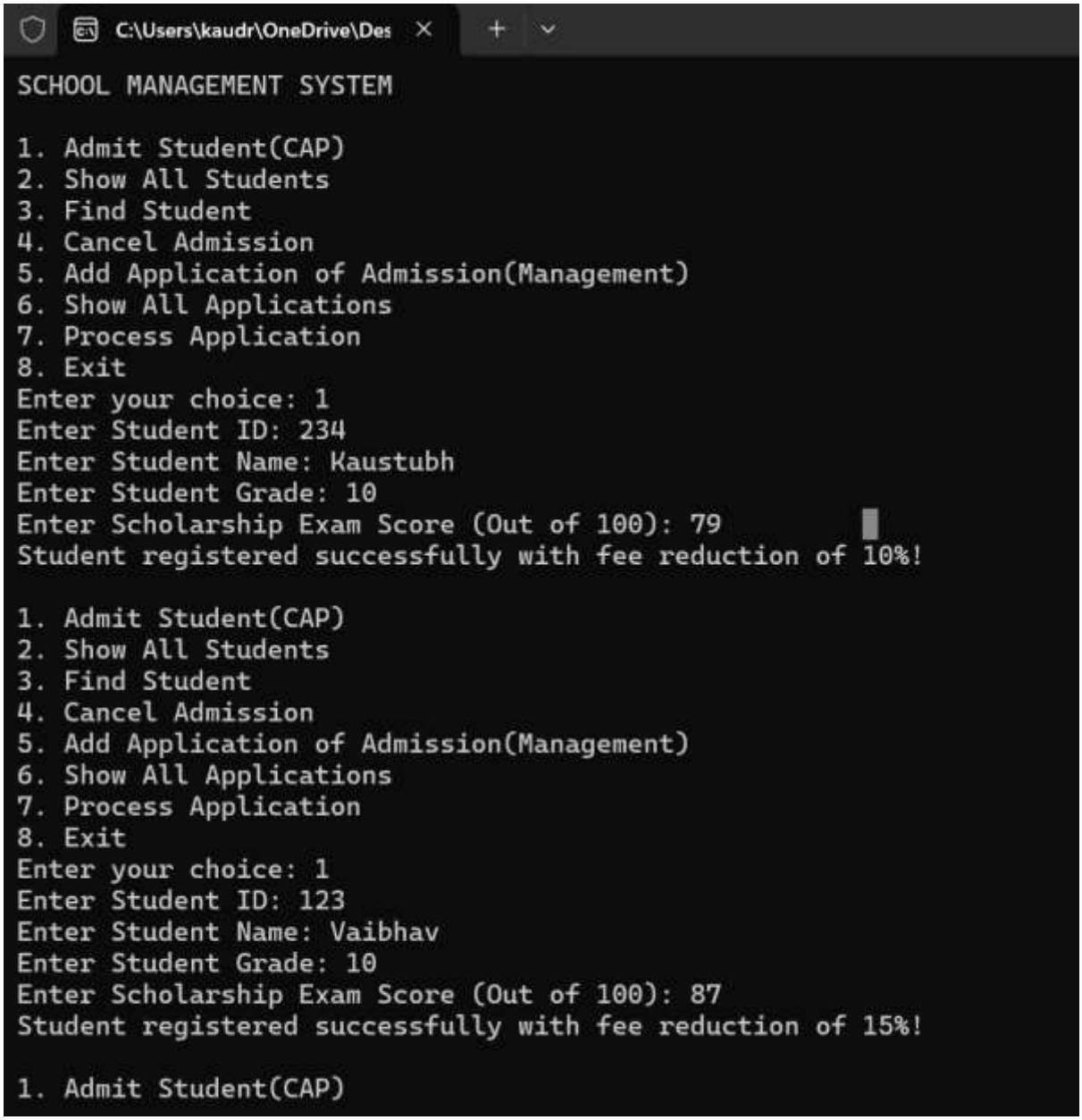
```
                {
        Student* temp = head;
        head = head->next;
        delete temp;
    }

    while (front != NULL)
                {
        Admission* temp = front;
        front = front->next;
        delete temp;
    }
  }
};

int main()
{
  cout << "SCHOOL MANAGEMENT SYSTEM" << endl;
  School* S1 = new School();
  int choice;
  int k = 1;
  while (k == 1)
       {
    cout << "\n1. Admit Student(CAP)\n2. Show All Students\n3. Find Student\n4. Cancel
Admission\n"
      << "5. Add Application of Admission(Management)\n6. Show All Applications\n7. Process
Application\n8. Exit\nEnter your choice: ";
    cin >> choice;

    switch (choice)
                {
        case 1:
```

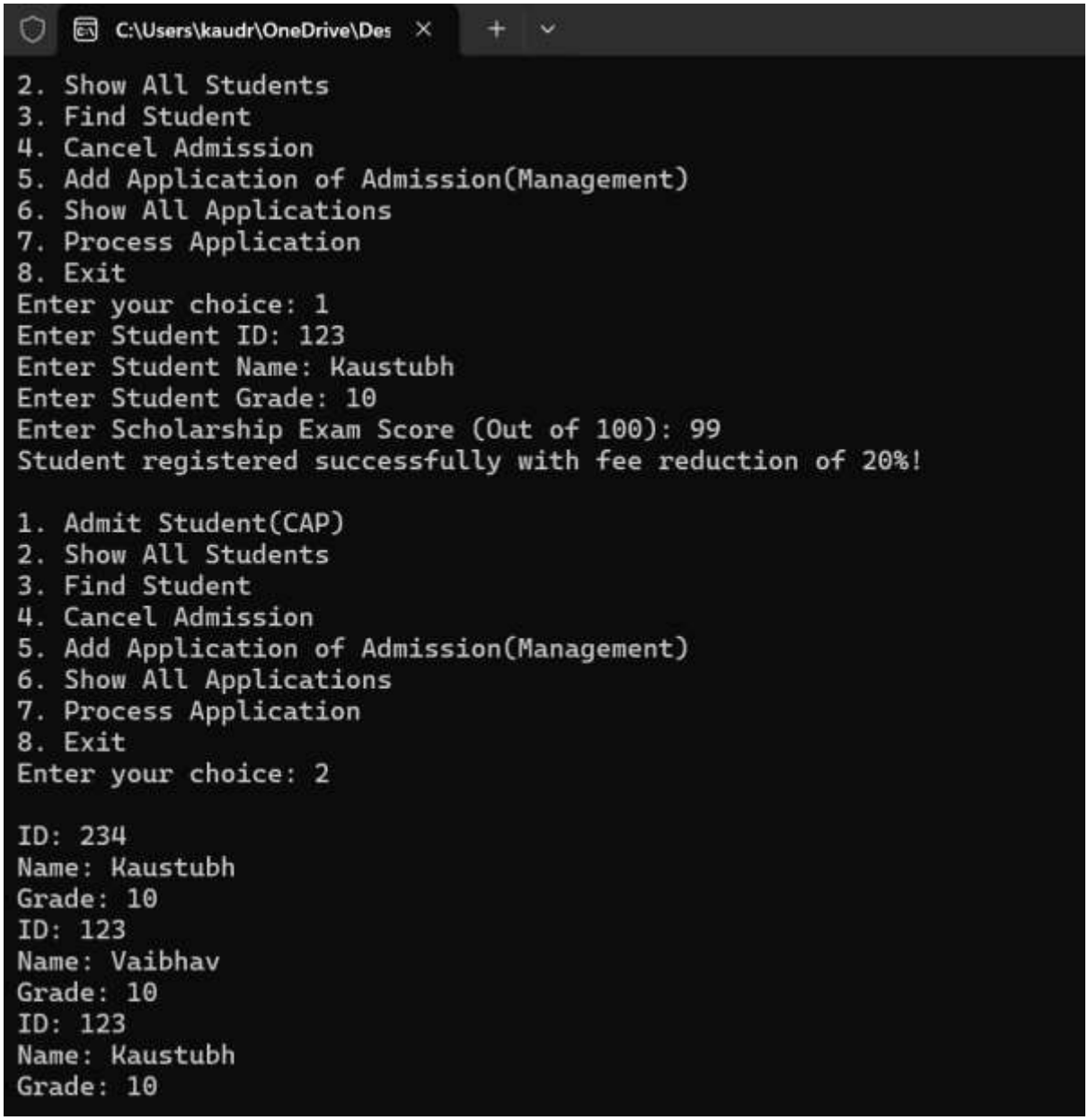
```
                    {
    int id, grade, exam_score;
    string name;
    cout << "Enter Student ID: ";
    cin >> id;
    cout << "Enter Student Name: ";
    cin >> name;
    cout << "Enter Student Grade: ";
    cin >> grade;
    cout << "Enter Scholarship Exam Score (Out of 100): ";
    cin >> exam_score;
    S1->Register(id, name, grade, exam_score);
    break;
}
case 2:
    S1->Show();
    break;
case 3:
                    {
    int id;
    cout << "Enter Student ID to search: ";
    cin >> id;
    S1->SearchStudent(id);
    break;
}
case 4:
                    {
    int id;
    cout << "Enter Student ID to delete: ";
    cin >> id;
    S1->Delete(id);
```

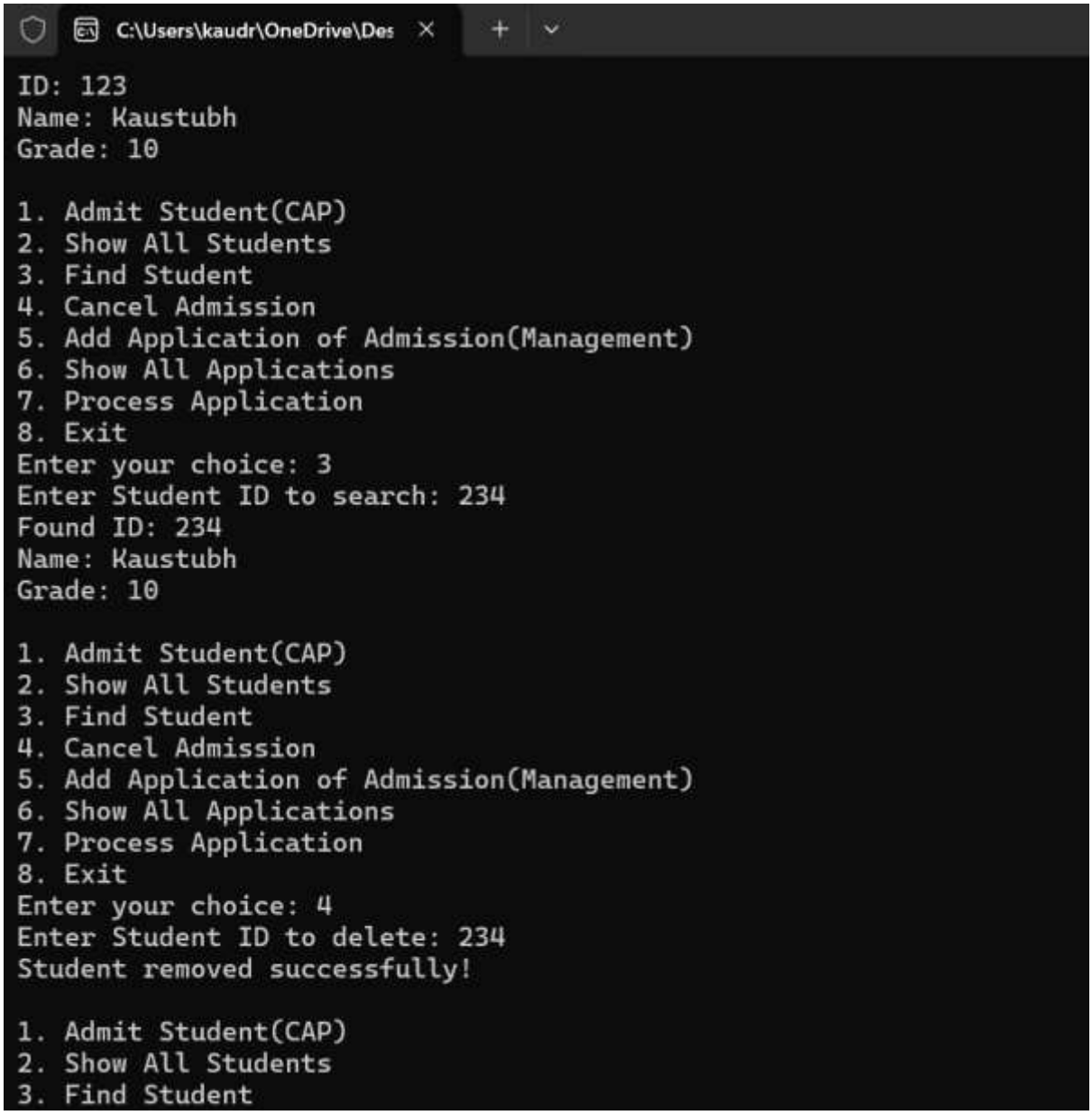
```
    break;
}
case 5:
                    {
    int id;
    string name;
    cout << "Enter Application Student ID: ";
    cin >> id;
    cout << "Enter Application Student Name: ";
    cin >> name;
    S1->AddApplication(id, name);
    break;
}
case 6:
    S1->ShowApplication();
    break;
case 7:
                    {
    int grade;
    cout << "Enter Grade for Application: ";
    cin >> grade;
    S1->Process(grade);
    break;
}
case 8:
    cout << "Closing" << endl;
    delete S1;
    k = 0;
    break;
default:
    cout << "Invalid choice!,Enter Correct Choice" << endl;
```

```
    }
  }
  return 0;
}
```

OUPUT:




C:\Users\kaudr\OneDrive\Des
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 1
Enter Student ID: 123
Enter Student Name: Kaustubh
Enter Student Grade: 10
Enter Scholarship Exam Score (Out of 100): 99
Student registered successfully with fee reduction of 20%!
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 2
ID: 234
Name: Kaustubh
Grade: 10
ID: 123
Name: Vaibhav
Grade: 10
ID: 123
Name: Kaustubh
Grade: 10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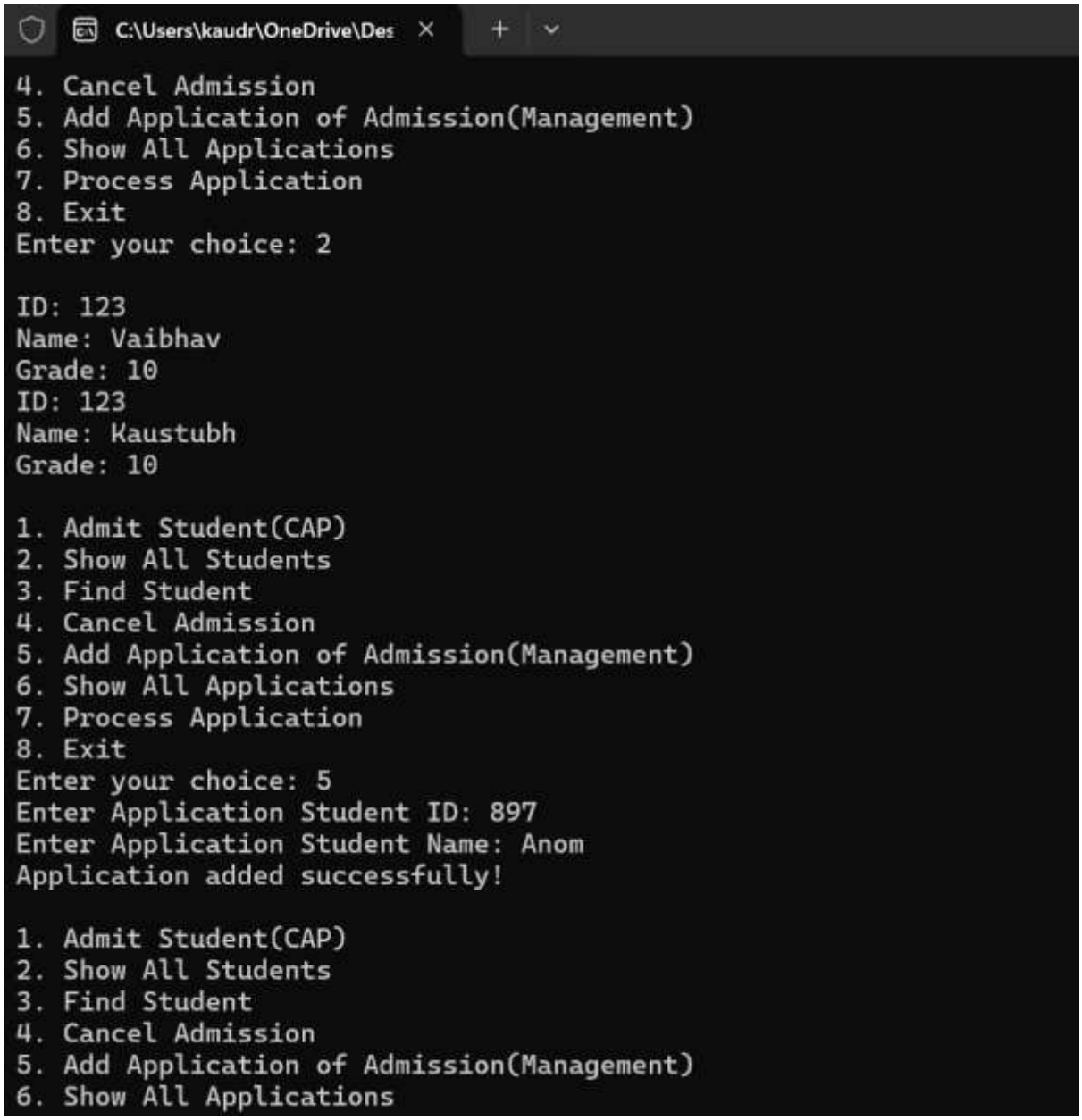
ID: 123
Name: Kaustubh
Grade: 10
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 3
Enter Student ID to search: 234
Found ID: 234
Name: Kaustubh
Grade: 10
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 4
Enter Student ID to delete: 234
Student removed successfully!
1. Admit Student(CAP)
2. Show All Students
3. Find Student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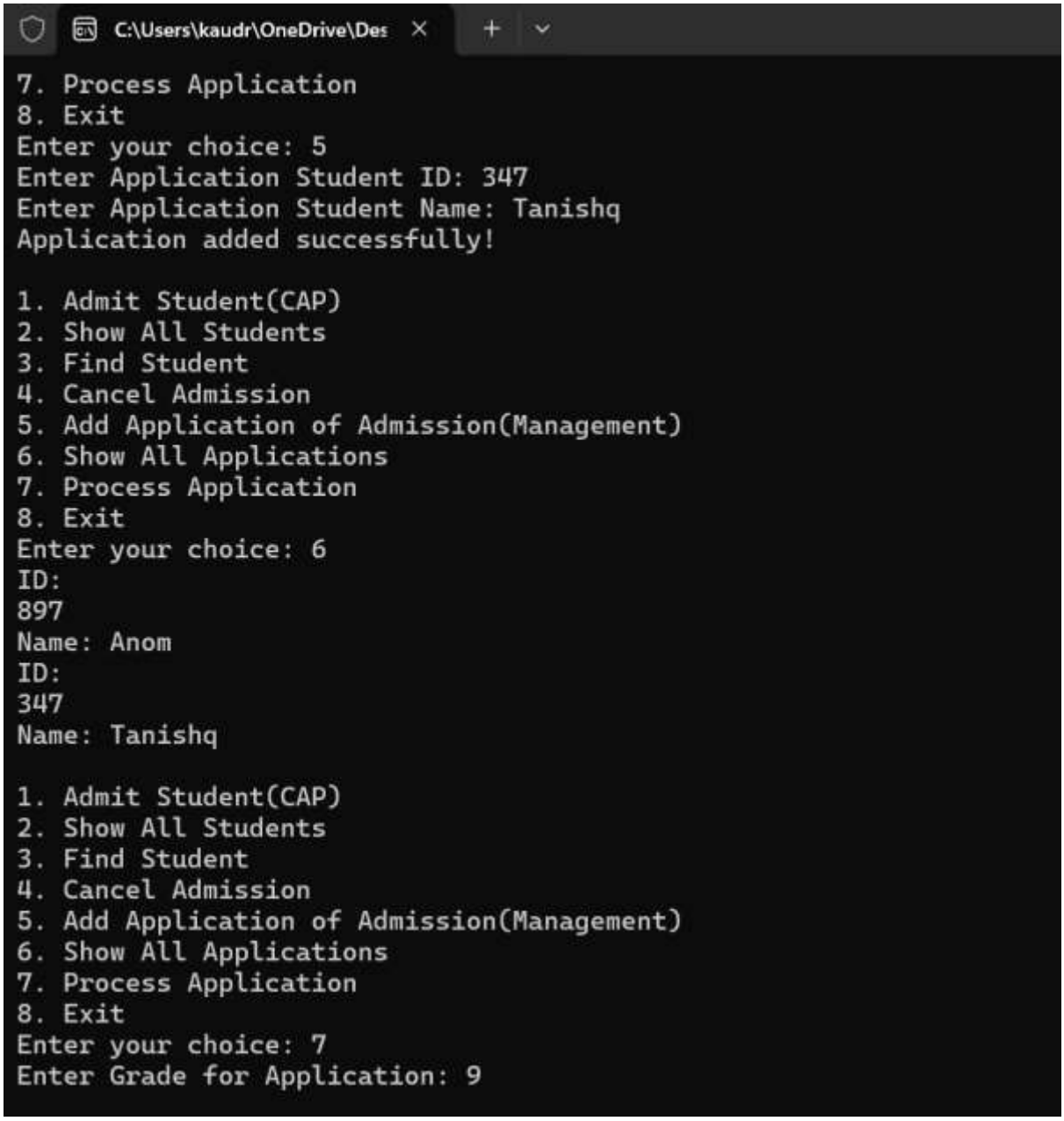
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 2
ID: 123
Name: Vaibhav
Grade: 10
ID: 123
Name: Kaustubh
Grade: 10
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 5
Enter Application Student ID: 897
Enter Application Student Name: Anom
Application added successfully!
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications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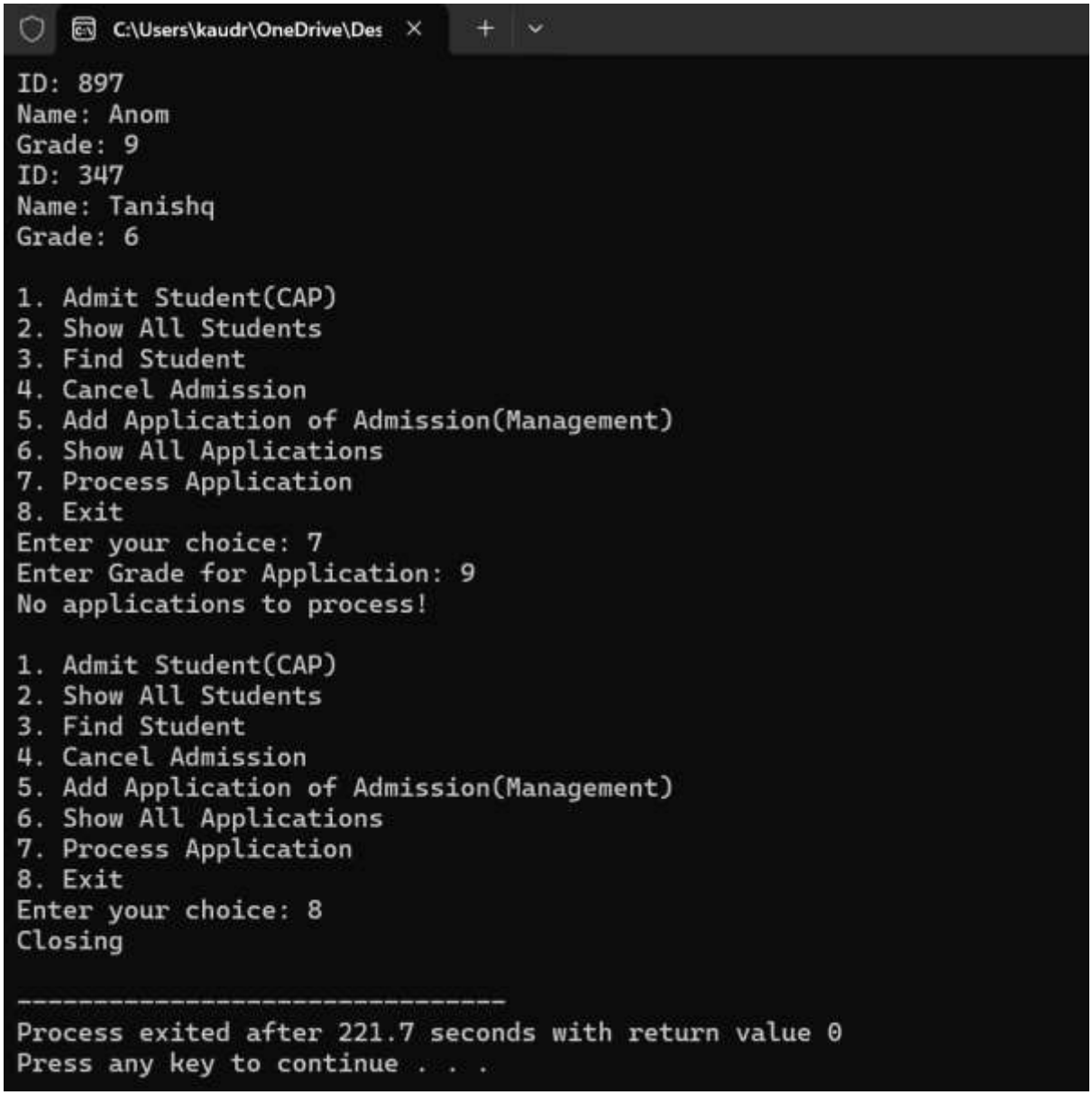
7. Process Application
8. Exit
Enter your choice: 5
Enter Application Student ID: 347
Enter Application Student Name: Tanishq
Application added successfully!
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 6
ID:
897
Name: Anom
ID:
347
Name: Tanishq
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 7
Enter Grade for Application: 9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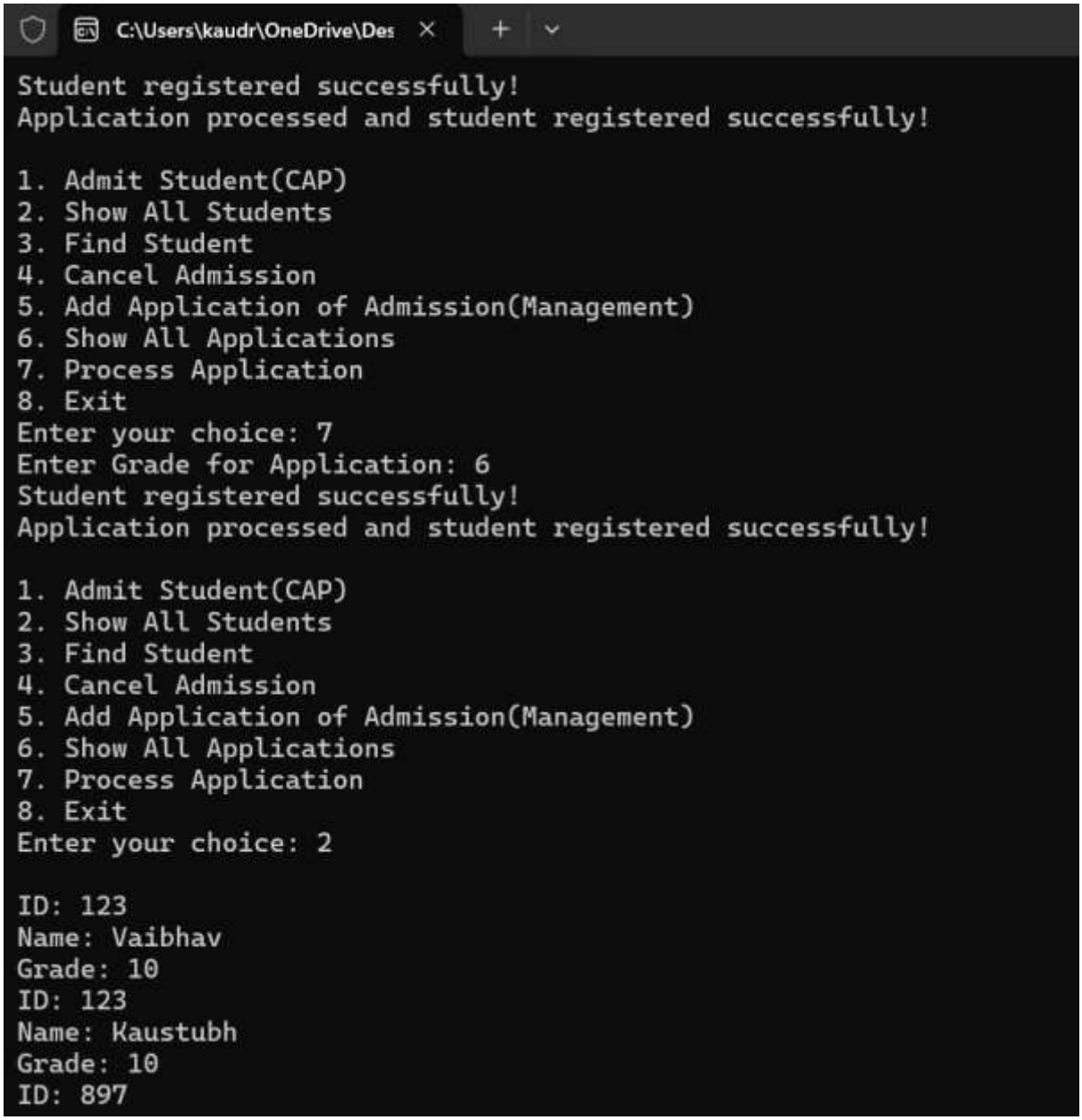
ID: 897
Name: Anom
Grade: 9
ID: 347
Name: Tanishq
Grade: 6
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 7
Enter Grade for Application: 9
No applications to process!
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 8
Closing

Process exited after 221.7 seconds with return value 0
Press any key to continue . . .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Student registered successfully!
Application processed and student registered successfully!
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 7
Enter Grade for Application: 6
Student registered successfully!
Application processed and student registered successfully!
1. Admit Student(CAP)
2. Show All Students
3. Find Student
4. Cancel Admission
5. Add Application of Admission(Management)
6. Show All Applications
7. Process Application
8. Exit
Enter your choice: 2
ID: 123
Name: Vaibhav
Grade: 10
ID: 123
Name: Kaustubh
Grade: 10
ID: 897