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Batch : A4

PRN No. : 202201040027

ROLL NO. : 63

ASSIGNMENT NO. 3

Code :

```
#include <iostream>
#include <string.h>

using namespace std;

class node
{
public:
int id;
float package; //
char name[10];
node *next;
};

class linkedList
{

private:
node *head; // address to the head

public:
linkedList()
{
head = NULL;
}

void create()
{
node *temp = NULL;
node *p = NULL; // create a new empty node
int choice = 1;
while (choice == 1)
{
if (head == NULL)
```

```
 {
head = new (node);
cout << "enter id ,name and package " << endl;
cin >> head->id >> head->name >> head->package; //
head->next = NULL;
p = head; // extra
}
else

{
temp = new (node);
cout << "Enter id ,name and package :" << endl;
cin >> temp->id >> temp->name >> temp->package; //
temp->next = NULL;
p->next = temp;
p = p->next; // head->next
}

cout << "do you want to enter new node" << endl;
cin >> choice;
}
}

void display()
{
node *temp = NULL;
node *p = NULL;
p = head;
cout << "Linked list is: " << endl;
while (p != NULL)
{
cout << "ID of student :" << endl;
cout << p->id << endl;
cout << "Name of the student :" << endl;
cout << p->name << endl;
cout << "package : " << endl;
cout << p->package << endl; //
            cout << "-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*" << endl;
p = p->next;
}
}

void insert_begin()
{
node *temp = NULL;
temp = new (node);
cout << "Enter id and name :" << endl;
cin >> temp->id >> temp->name >> temp->package; //
```

```
 temp->next = head; // Add the address of the head to the TEMP
                                          head = temp; // add the our new id
and name of the temp to the head
}

void insert_end()
{
node *temp = NULL;
temp = new (node);
node *p = NULL;
p = head;
cout << "Enter id and name at end :" << endl;
cin >> temp->id >> temp->name >> temp->package; //
while (p->next != NULL)
{
p = p->next;
}
p->next = temp;
temp->next = NULL;
}

void insert_bet()
{
node *p = NULL;
int pos;
cout << "enter pos" << endl;
cin >> pos;
p = head;

for (int i = 1; i < pos - 1; i++)
{
p = p->next;
}
node *temp;
temp = new (node);
cout << "enter new id ,name and package" << endl;
cin >> temp->id >> temp->name >> temp->package; //
// temp->next=NULL;
temp->next = p->next;
p->next = temp;
}

void del_begin()
{
node *temp = head; // points the temp to the head
head = head->next; // move head to the next node
delete (temp);
```

```
 }

void del_end()
{
node *p = NULL;
p = head;
node *temp = NULL;
temp = head;
while (p->next != 0)
{
temp = p;
p = p->next;
}
temp->next = NULL;
delete (p);
}

void del_pos()
{
int pos;
        cout << "Enter the position of the id you want to delete" << endl;
cin >> pos;
node *temp = NULL;
temp = head;
node *p = NULL;
p = head;
for (int i = 1; i < pos - 1; i++)
{
temp = temp->next;
}
p = temp->next;
temp->next = p->next;
delete (p);
}

void del_byID()
{
node *temp = NULL;
node *p = NULL;
temp = head;
int del_id;
cout << "enter the id of student you want to delete" << endl;
cin >> del_id;

while (head != NULL && head->id == del_id)
{
head = head->next; // temp=head
delete (temp);
```

```
 }

p = head;
while (p != NULL && p->next != NULL)
{
if (p->next->id == del_id)
{
temp = p->next;
p->next = temp->next;
delete (temp);
}
else
{
p = p->next;
}
}
}

void update()
{
int flag;
node *p = NULL; // without this p=head not possible
p = head;
int del_id, ID;
        cout << "Enter the id of the student to be update:" << endl;
cin >> del_id;

while (p != NULL)
{
if (p->id == del_id)
{
// node *temp=NULL;
// temp=new(node);
cout << "enter new ID:" << endl;
cin >> ID;
p->id = ID;
// temp->next=p->next;
}
else
{
p = p->next;
}
}
}

void sort()
{
int ID;
```

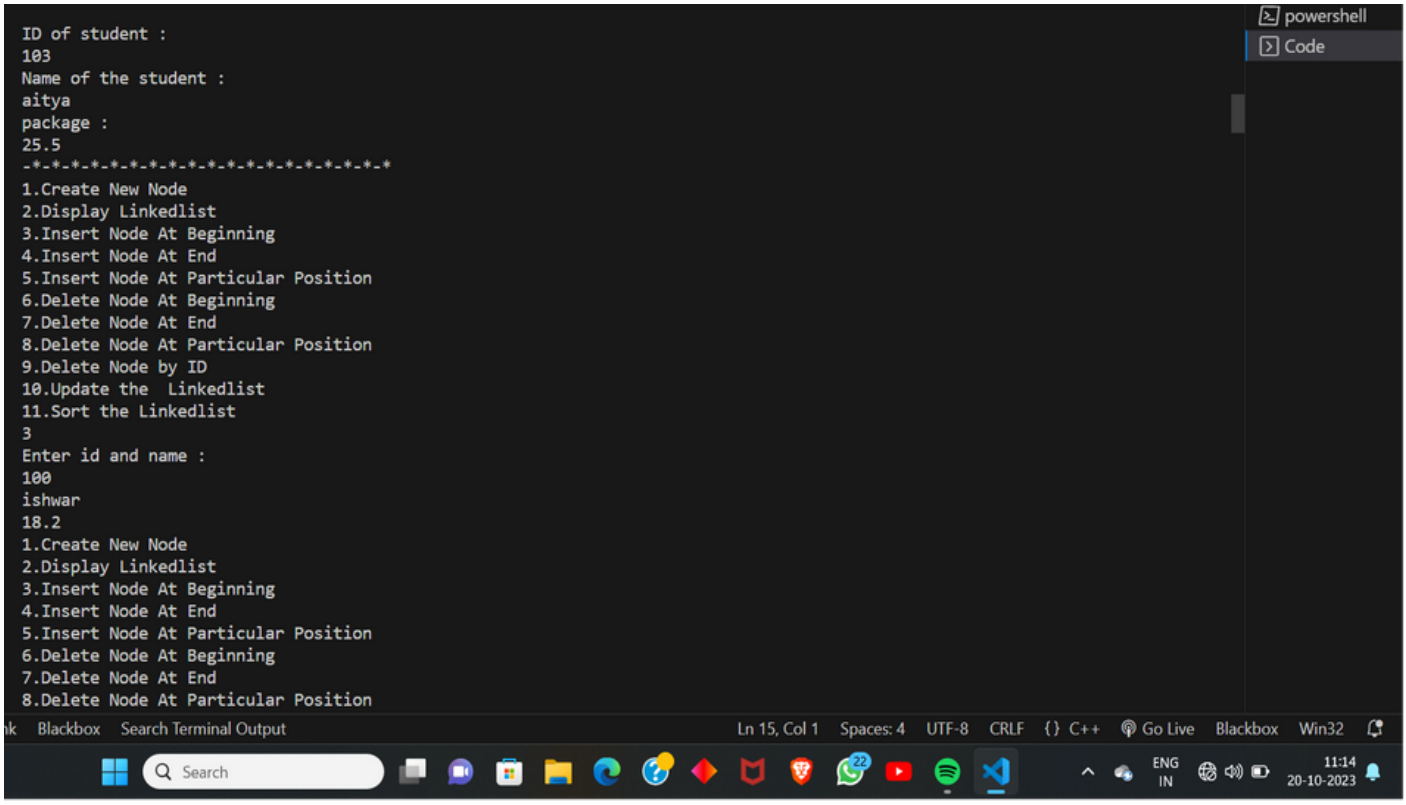
```
 string NAME;

node *p1 = NULL;
node *p2 = NULL;
p1 = head;

while (p1 != NULL)
{
p2 = p1->next;
while (p2 != NULL)
{
if (p1->id > p2->id)
{
ID = p1->id;
NAME = p1->name;
p1->id = p2->id;
// p1->name=p2->name;
p2->id = ID;
// p2->name=NAME;
}
p2 = p2->next;
}
p1 = p1->next;
}
}
};

int main()
{
int choice, k = 0;
linkedList L1;
while (k == 0)
{
cout << "1.Create New Node" << endl;
cout << "2.Display Linkedlist" << endl;
cout << "3.Insert Node At Beginning" << endl;
cout << "4.Insert Node At End" << endl;
        cout << "5.Insert Node At Particular Position" << endl;
cout << "6.Delete Node At Beginning" << endl;
cout << "7.Delete Node At End" << endl;
        cout << "8.Delete Node At Particular Position" << endl;
cout << "9.Delete Node by ID" << endl;
cout << "10.Update the Linkedlist" << endl;
cout << "11.Sort the Linkedlist" << endl;
cin >> choice;
switch (choice)
{
case 1:
```

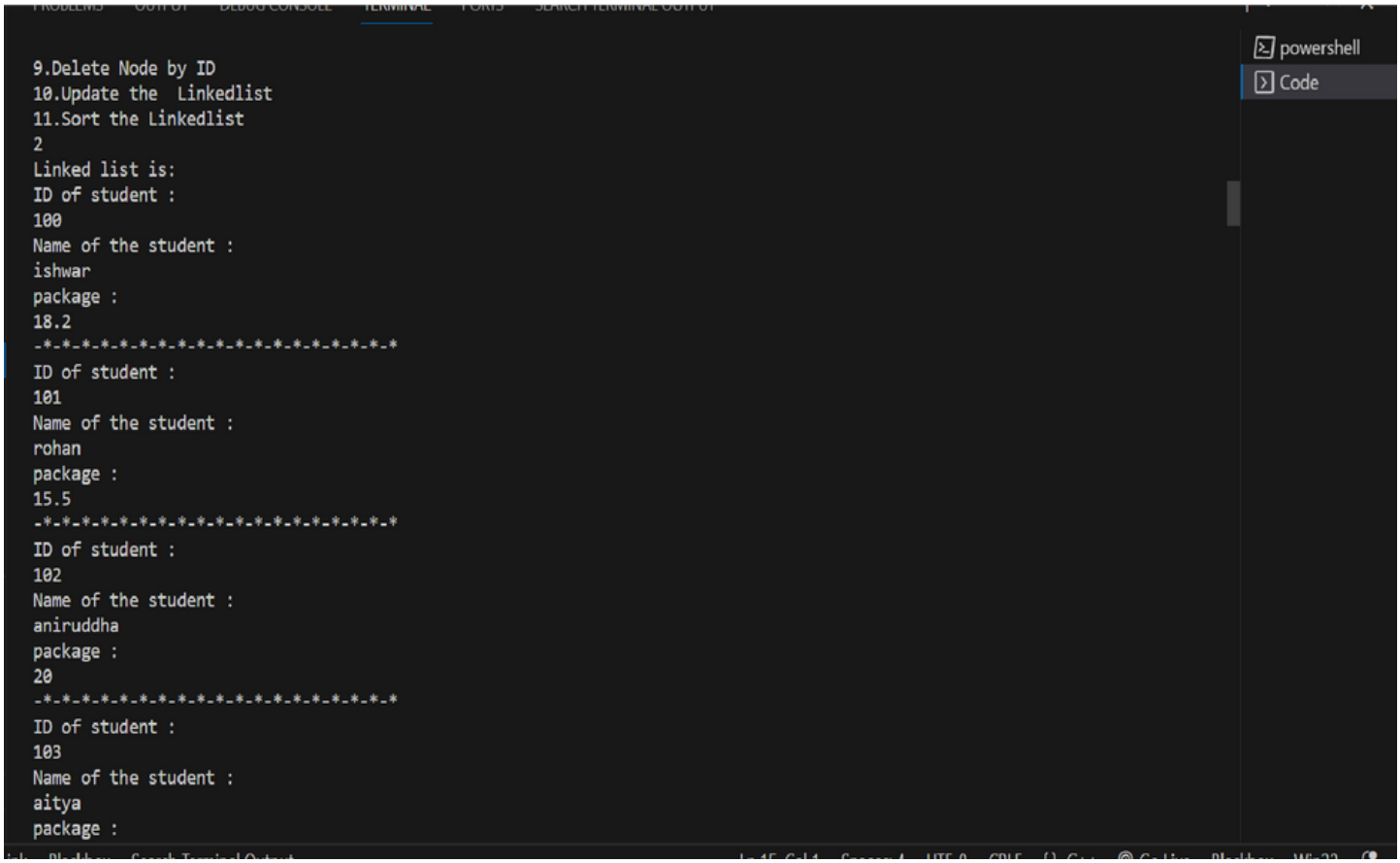
```
 L1.create();
            break;
case 2:
L1.display();
            break;
case 3:
            L1.insert_begin();
            break;
case 4:
L1.insert_end();
            break;
case 5:
L1.insert_bet();
            break;
case 6:
L1.del_begin();
            break;
case 7:
L1.del_end();
            break;
case 8:
L1.del_pos();
            break;
case 9:
L1.del_byID();
            break;
case 10:
L1.update();
            break;
case 11:
L1.sort();

            break;
}
}
}
```

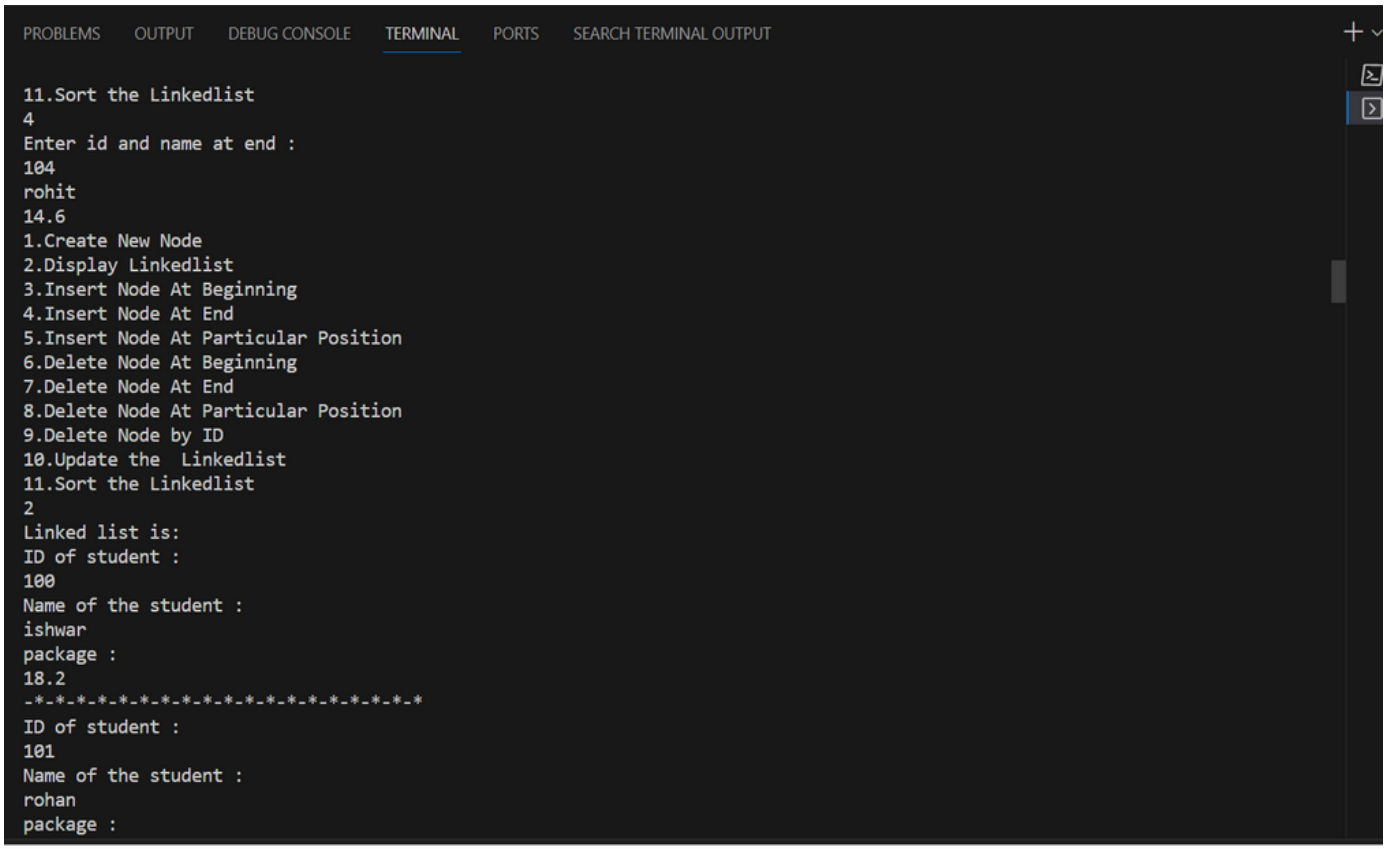
Outp ut:

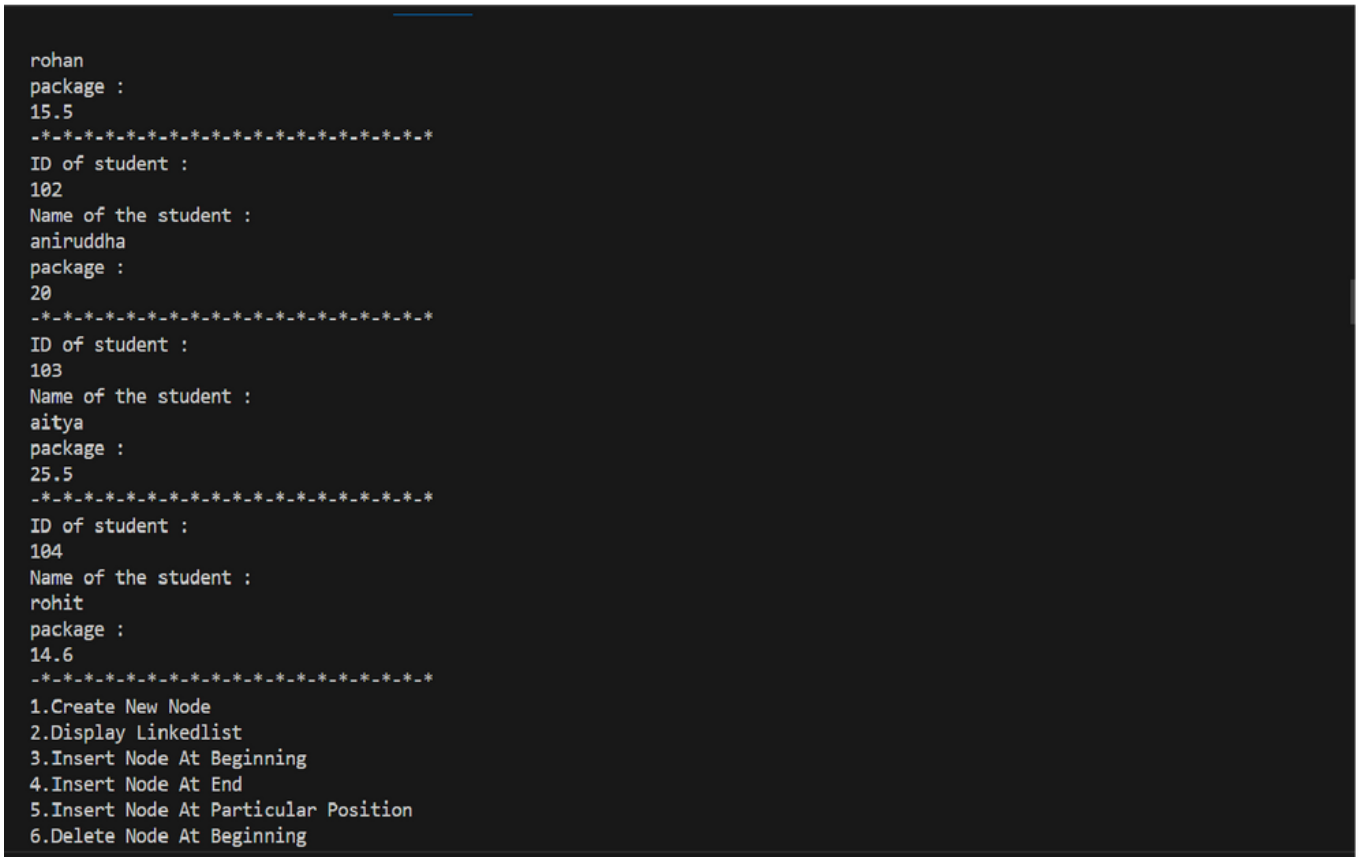
```
p -o New_Linkedlist } ; if ($?) { .\New_Linkedlist }
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
1
enter id ,name and package
101
rohan
15.5
do you want to enter new node
1
Enter id ,name and package :
102
aniruddha
20.0
do you want to enter new node
1
Enter id ,name and package :
103
aitya
25.5
do you want to enter new node
```

```
25.5
do you want to enter new node
3
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
101
Name of the student :
rohan
package :
15.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
102
Name of the student :
aniruddha
package :
20
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
```


ID of student :
103
Name of the student :
aitya
package :
25.5
-*
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the Linkedlist
11.Sort the Linkedlist
3
Enter id and name :
100
ishwar
18.2
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
powershell
Code
Blackbox
Search Terminal Output
Ln 15, Col 1
Spaces: 4
UTF-8
CRLF
C++
Go Live
Blackbox
Win32
Search
ENG
IN
11:14
20-10-2023


9.Delete Node by ID
10.Update the Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
100
Name of the student :
ishwar
package :
18.2
-*
ID of student :
101
Name of the student :
rohan
package :
15.5
-*
ID of student :
102
Name of the student :
aniruddha
package :
20
-*
ID of student :
103
Name of the student :
aitya
package :
powershell
Code


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
SEARCH TERMINAL OUTPUT
11.Sort the Linkedlist
4
Enter id and name at end :
104
rohit
14.6
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
100
Name of the student :
ishwar
package :
18.2
-*
ID of student :
101
Name of the student :
rohan
package :

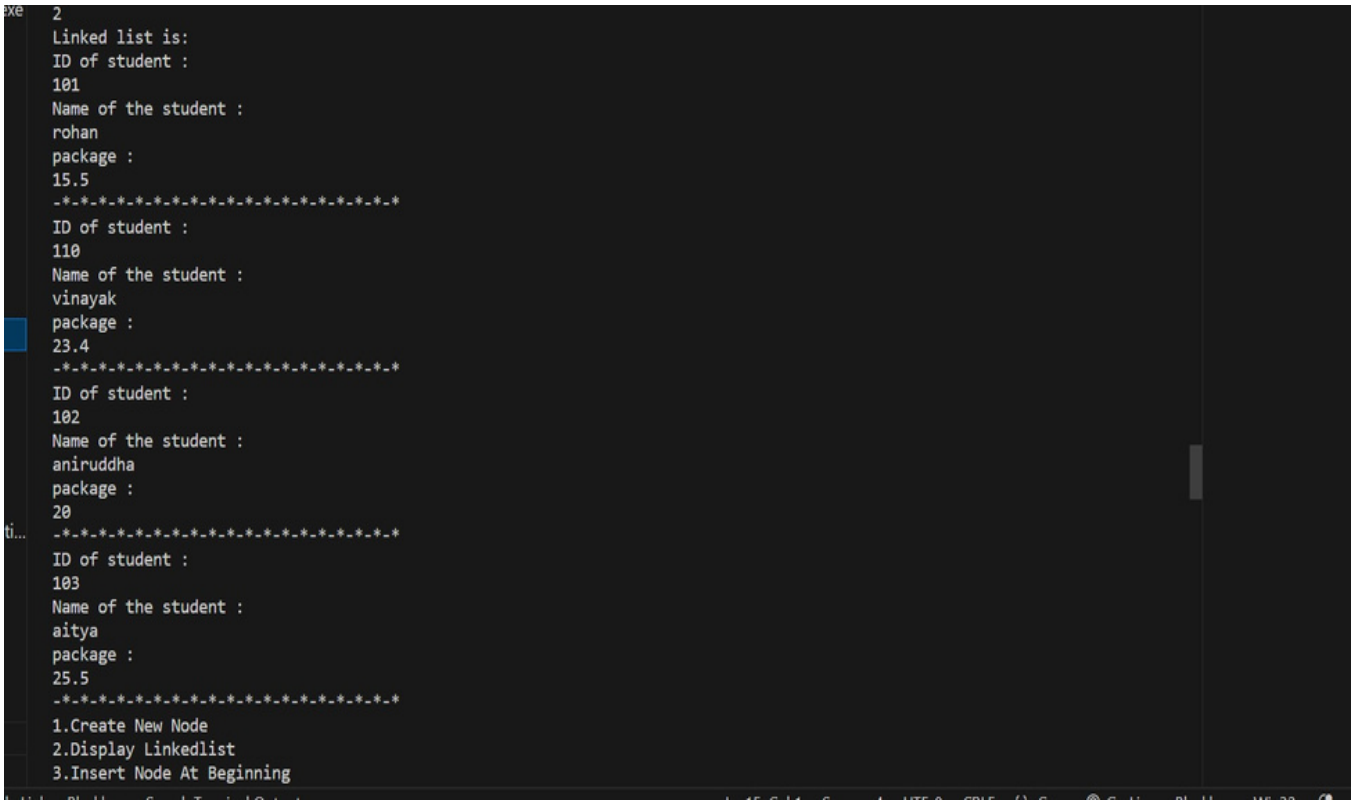

rohan
package :
15.5
-*
ID of student :
102
Name of the student :
aniruddha
package :
20
-*
ID of student :
103
Name of the student :
aitya
package :
25.5
-*
ID of student :
104
Name of the student :
rohit
package :
14.6
-*
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning

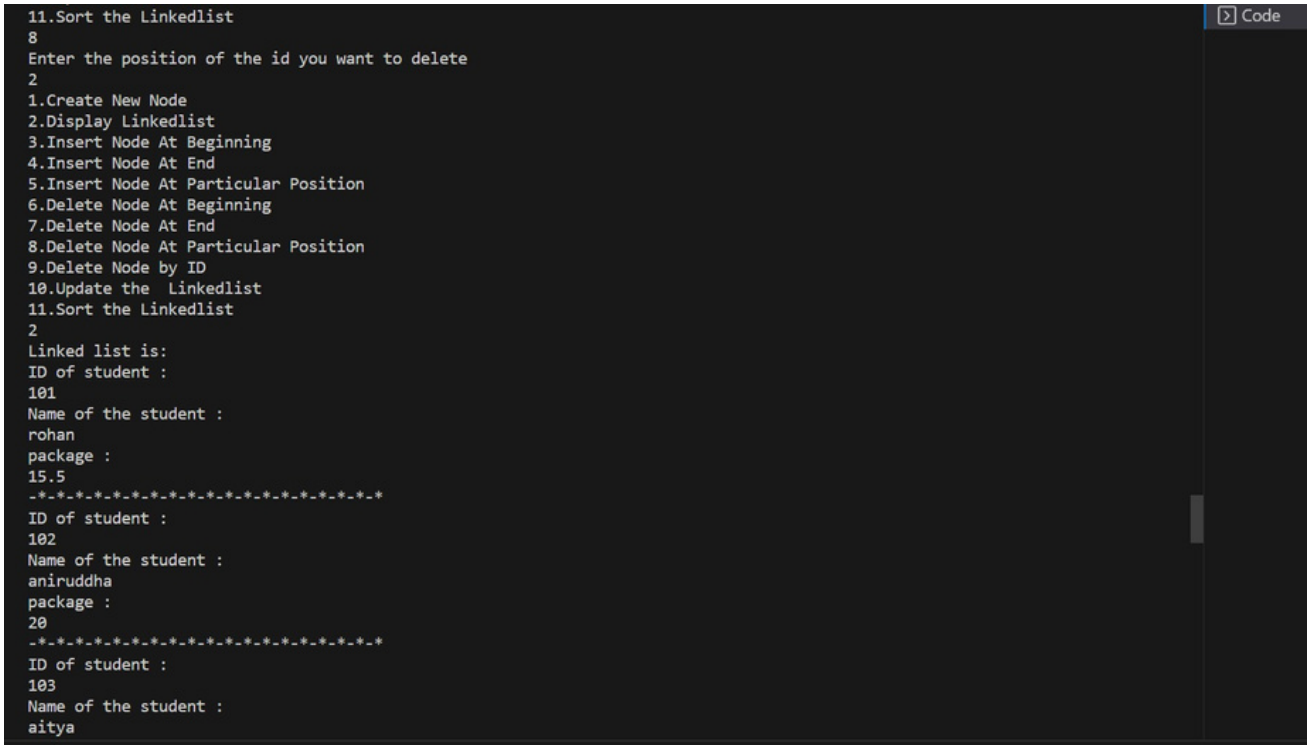
```
11.Sort the Linkedlist
5
enter pos
3
enter new id ,name and package
110
vinayak
23.4
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
100
Name of the student :
ishwar
package :
18.2
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
101
Name of the student :
```

```
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
100
Name of the student :
ishwar
package :
18.2
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
101
Name of the student :
rohan
package :
15.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
110
Name of the student :
vinayak
package :
23.4
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
102
Name of the student :
aniruddha
package :
```

```
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
6
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
101
Name of the student :
rohan
```

```
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
7
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
101
Name of the student :
rohan
package :
15.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
110
Name of the student :
vinayak
package :
23.4
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
102
```


2
Linked list is:
ID of student :
101
Name of the student :
rohan
package :
15.5
-*
ID of student :
110
Name of the student :
vinayak
package :
23.4
-*
ID of student :
102
Name of the student :
aniruddha
package :
20
-*
ID of student :
103
Name of the student :
aitya
package :
25.5
-*
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning


11.Sort the Linkedlist
8
Enter the position of the id you want to delete
2
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the Linkedlist
11.Sort the Linkedlist
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Linked list is:
ID of student :
101
Name of the student :
rohan
package :
15.5
-*
ID of student :
102
Name of the student :
aniruddha
package :
20
-*
ID of student :
103
Name of the student :
aitya

```
11.Sort the Linkedlist
9
enter the id of student you want to delete
102
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
101
Name of the student :
rohan
package :
15.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
103
Name of the student :
aitya
package :
25.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
1.Create New Node
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH TERMINAL OUTPUT

powershell
Code

```
11.Sort the Linkedlist
10
Enter the id of the student to be update:
103
enter new ID:
102
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the  Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
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Name of the student :
rohan
package :
15.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
ID of student :
102
Name of the student :
aitya
package :
25.5
-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
1.Create New Node
```

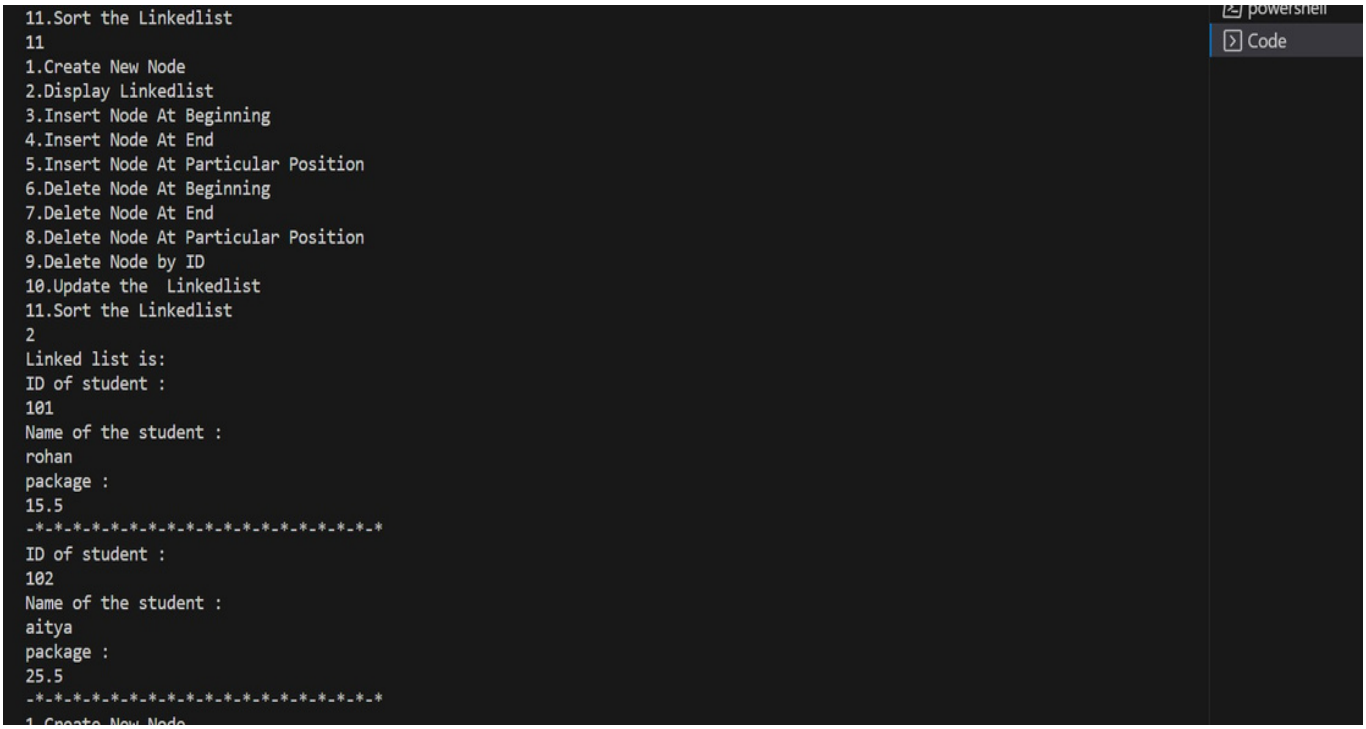
powershell
Code
11.Sort the Linkedlist
11
1.Create New Node
2.Display Linkedlist
3.Insert Node At Beginning
4.Insert Node At End
5.Insert Node At Particular Position
6.Delete Node At Beginning
7.Delete Node At End
8.Delete Node At Particular Position
9.Delete Node by ID
10.Update the Linkedlist
11.Sort the Linkedlist
2
Linked list is:
ID of student :
101
Name of the student :
rohan
package :
15.5
-*
ID of student :
102
Name of the student :
aitya
package :
25.5
-*
1.Create New Node