**DATA STRUCTURE**

**EXP NO:** 1

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**DEPT:**AI&DS

WEEK 1 (SINGLE LINKED LIST)

#include <stdio.h>

int n = 0;

void Insert(int a[], int p, int e);

void Delete(int a[], int p);

void Search(int a[], int e);

void Traverse(int a[]);

void Sort(int a[]);

int main()

{

int a[5], ch, e, p;

printf("1.Insert \n2.Delete \n3.Search");

printf("\n4.Traverse \n5.Sort \n6.Exit\n");

do

{

printf("\nEnter your choice : ");

scanf("%d", &ch);

switch(ch)

{

case 1:

printf("Enter the position : ");

scanf("%d", &p);

printf("Enter the element : ");

scanf("%d", &e);

Insert(a, p, e);

break;

case 2:

printf("Enter the position : ");

scanf("%d", &p);

Delete(a, p);

break;

case 3:

printf("Enter the element : ");

scanf("%d", &e);

Search(a, e);

break;

case 4:

printf("The elements are : ");

Traverse(a);

break;

case 5:

Sort(a);

break;

}

} while(ch <= 5);

return 0;

}

void Insert(int a[], int p, int e)

{

int i;

for(i = n; i >= p; i--)

a[i + 1] = a[i];

a[p] = e;

n = n + 1;

}

void Delete(int a[], int p)

{

int i;

for(i = p; i < n; i++)

a[i] = a[i + 1];

n = n - 1;

}

void Search(int a[], int e)

{

int i, flag = 0;

for(i = 0; i < n; i++)

{

if(e == a[i])

{

flag = 1;

break;

}

}

if(flag == 1)

printf("Successful. Element %d is at location %d", e, i);

else

printf("Unsuccessful.");

}

void Traverse(int a[])

{

int i;

for(i = 0; i < n; i++)

printf("%d\t", a[i]);

}

void Sort(int a[])

{

int i, j, t;

for(i = 0; i < n-1; i++)

{

for(j = i + 1; j < n; j++)

{

if(a[i] > a[j])

{

t = a[i];

a[i] = a[j];

a[j] = t;

}

}

}

}

OUTPUT

1.Insert

2.Delete

3.Search

4.Traverse

5.Sort

6.Exit

Enter your choice : 1

Enter the position : 0

Enter the element : 7

Enter your choice : 4

The elements are : 7

Enter your choice : 1

Enter the position : 0

Enter the element : 14

Enter your choice : 4

The elements are : 14 7

Enter your choice : 1

Enter the position : 1

Enter the element : 21

Enter your choice : 4

The elements are : 14 21 7

Enter your choice : 2

Enter the position : 1

Enter your choice : 4

The elements are : 14 7

Enter your choice : 3

Enter the element : 7

Successful. Element 7 is at location 1