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***Digital Assignment***

#include <stdio.h>

#include<stdlib.h>

int main()

{

printf("\n\nLinear Probing:\n");

int n=0;

printf("\nEnter the size of array\n");

scanf("%d",&n);

int A1[n];

int A2[n];

int A3[n];

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

{

A1[i]=A2[i]=A3[i]=NULL;

}

int key,index,i,h;

for(int j=0; j<n; j++)

{

printf("\nEnter a value to insert: \n");

scanf("%d",&key);

h=key%n;

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

{

index=(h+i)%n;

if(A1[index] == NULL)

{

A1[index]=key;

break;

}

}

if(i == n)

printf("\nElement cannot be inserted\n");

}

i=0;

printf("\nElements in the hash table:\n");

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

{

printf("\nat %d \t value = %d",i,A1[i]);

}

printf("\n\nQuadratic Probing:\n");

for(int j=0; j<n; j++)

{

printf("\nEnter a value to insert\n");

scanf("%d",&key);

h=key%n;

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

{

index=(h+(i\*i))%n;

if(A2[index] == NULL)

{

A2[index]=key;

break;

}

}

if(i == n)

printf("\nIt can’t be inserted\n");

}

printf("\nElements in the hash table are: \n");

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

{

printf("\nat index %d \t value = %d",i,A2[i]);

}

printf("\n\nDouble Hashing:\n");

int hash2;

int prime;

for(int j =n; j>=1; j--)

{

int c=0;

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

{

if(j%i==0)

{

c++;

}

}

if(c==2)

{

prime = j;

break;

}

}

for(int j=0; j<n; j++)

{

printf("\nEnter a value to insert\n");

scanf("%d",&key);

h=key%n;

hash2 = prime-(key%prime);

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

{

index=(h+(i\*hash2))%n;

if(A3[index] == NULL)

{

A3[index]=key;

break;

}

}

if(i == n)

printf("\nIt can’t be inserted\n");

}

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

{

printf("\nat %d \t value = %d",i,A3[i]);

}

return 0;

}

