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#include <stdio.h>
void division();
void folding();
void midsqu();
int main()
{
int x = 0, ch;
do
{
printf("\n1. Division\n2. Mid-square\n3. Folding\n4. Exit\n");
printf("Enter your choice: ");
scanf("%d", &ch);
switch(ch)
{
case 1:
division();
break;
case 2:
midsqu();
break;
case 3:
folding();
break;
case 4:
x = 1;
break;
default:
printf("Invalid choice. Please try again.\n");
}
}
while (x == 0);

return 0;
}
void division()
{
int a[10] = {0}, flag[10] = {0}, key, sum, i, n;
printf("Enter how many values you want to enter in the hash table: ");
scanf("%d", &n);
printf("Enter the key values: \n");
for(i = 0; i < n; i++)
{
scanf("%d", &key);
sum = key % 11;
if(a[sum] == 0)

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{
a[sum] = key;
}
else
{
flag[sum] = -1;
}
}
printf("The contents of the hash table are:\n");
for(i = 0; i < 10; i++)
{
if(flag[i] == -1)
{
printf("%d = %d (collision)\n", i, a[i]);
}
else
{
printf("%d = %d\n", i, a[i]);
}
}
}
void folding()
{
int b[10] = {0}, flag[10] = {0}, key, sum, x, l, n, i;
printf("Enter how many values you want to enter in the hash table: ");
scanf("%d", &n);
printf("Enter the key values: \n");
for(i = 0; i < n; i++)
{
scanf("%d", &key);
l = key;
sum = 0;
do
{
x = key % 10;
sum += x;
key = key / 10;
}
while(key > 0);
sum = sum % 10;
printf("The hash address of %d is %d\n", l, sum);
if(b[sum] == 0)
{
b[sum] = l;
}
}

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else
{
flag[sum] = -1;
}
}
printf("The contents of the hash table are:\n");
for(i = 0; i < 10; i++)
{
if(flag[i] == -1)
{
printf("%d = %d (collision)\n", i, b[i]);
}
else
{
printf("%d = %d\n", i, b[i]);
}
}
}

void midsqu()
{
int c[10] = {0}, flag[10] = {0}, key, sum, l, x, n, i;
printf("Enter how many values you want to enter in the hash table: ");
scanf("%d", &n);
printf("Enter the key values: \n");
for(i = 0; i < n; i++)
{
scanf("%d", &key);
sum = key * key;
l = key;
key = sum;
sum = (key / 10) % 10;
printf("The hash address of %d is %d\n", l, sum);
if(c[sum] == 0)
{
c[sum] = l;
} else {
flag[sum] = -1;
}
}
printf("The contents of the hash table are:\n");
for(i = 0; i < 10; i++)
{
if(flag[i] == -1)
{
printf("%d = %d (collision)\n", i, c[i]);

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}  
else  
{  
printf("%d = %d\n", i, c[i]);  
}  
}  
}
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