**דף עבודה מערכים 2 – אופיר הופמן י3**

**תרגיל 11**

int n = int.Parse(Console.ReadLine());

char[] arr = new char[n];

for (int i = 0; i < arr.Length; i++)

{

arr[i] = char.Parse(Console.ReadLine());

}

for (int i = 0; i < arr.Length; i++)

{

char letter = arr[i];

bool found = false;

for (int index = 0; index < arr.Length && !found; index++)

{

if (arr[index] == letter+1)

{

found = true;

Console.WriteLine(letter + "found");

}

}

}

**תרגיל 12**

public static int TavCount(char[] arr, char ch)

{

int count = 0;

for (int i = 0; i < arr.Length; i++)

{

if (arr[i] == ch)

count++;

}

return count;

}

public static void Ex12(char[] arr)

{

bool found = false;

int indexStart = -1;

for (int i = 0; i < arr.Length && !found; i++)

{

if (TavCount(arr, arr[i]) >= 3)

{

found = true;

indexStart = i;

}

}

if (found)

Console.WriteLine(indexStart);

else

Console.WriteLine("Didnt find");

}

**תרגיל 13**

public static bool IsIn(int[] arr, int num)

{

bool found = false;

for (int i = 0; i < arr.Length && !found; i++)

{

if (arr[i] == num)

found = true;

}

return found;

}

public static bool Ex13(int[] arr)

{

bool cont = true;

for (int i = 1; i <= arr.Length; i++)

{

if (IsIn(arr, i) == false)

cont = false;

}

return cont;

}

**תרגיל 14**

//EX14

public static void MoveArr(int[] arr, int firstIndex, int lastIndex)

{

for (int i = lastIndex; i >= firstIndex; i--)

{

arr[i + 1] = arr[i];

}

}

public static void Ex14()

{

Console.WriteLine("Enter number:");

int n = int.Parse(Console.ReadLine());

int[] arr = new int[n];

Console.WriteLine("Enter value:");

int num = int.Parse(Console.ReadLine());

arr[0] = num;

int lastNumIndex = 0;

for (int i = 1; i < arr.Length; i++)

{

Console.WriteLine("Enter value:");

num = int.Parse(Console.ReadLine());

bool found = false;

int insertIndex = 0;

for (int index = 0; index < arr.Length && !found; index++)

{

if (arr[index] > num)

{

found = true;

insertIndex = index;

}

}

if (found)

{

MoveArr(arr, insertIndex, lastNumIndex);

arr[insertIndex] = num;

lastNumIndex++;

}

else

{

arr[lastNumIndex + 1] = num;

lastNumIndex++;

}

}

PrintArr(arr);

}

**תרגיל 15**

public static void MoveArr1(int[] arr)

{

for (int i = arr.Length-1; i >= 0; i--)

{

arr[i + 1] = arr[i];

}

}

**המשך למטה**

**תרגיל 16**

public static void Ex16()

{

Console.WriteLine("Enter Show number (1-15):");

int show = int.Parse(Console.ReadLine());

Console.WriteLine("Enter number of tickets:");

int tickets = int.Parse(Console.ReadLine());

int sum = 0;

int[] arr = new int[16];

while (show != 0 && tickets != 0)

{

sum += tickets;

arr[show] += tickets;

Console.WriteLine("Enter Show number (1-15):");

show = int.Parse(Console.ReadLine());

Console.WriteLine("Enter number of tickets:");

tickets = int.Parse(Console.ReadLine());

}

for (int i = 1; i < arr.Length; i++)

{

double precentage = (double)(((double)arr[i] / sum) \* 100);

Console.WriteLine("Show " + i + ": " + (precentage)+"%");

}

}

**תרגיל 17**

public static void Ex17()

{

int[] N = new int[10];

Random rnd = new Random();

for(int i = 0; i < N.Length; i++)

{

N[i] = rnd.Next(1, 10);

}

int oddIndex = 0;

int evenIndex = N.Length - 1;

int[] M = new int[10];

for (int i = 0; i < N.Length; i++)

{

if (N[i] % 2 == 0)

{

M[evenIndex] = N[i];

evenIndex--;

}

else

{

M[oddIndex] = N[i];

oddIndex++;

}

}

}

**תרגיל 18**

public static int MaxIndex(double[] arr)

{

int maxIndex = 0;

for (int i = 0; i < arr.Length; i++)

{

if (arr[i] > arr[maxIndex])

maxIndex = i;

}

return maxIndex;

}

public static void Ex18()

{

double[] arr = new double[6];

for (int i = 0; i < arr.Length; i++)

{

arr[i] = double.Parse(Console.ReadLine());

}

int[] newArr = new int[arr.Length];

for (int i = 0; i < arr.Length; i++)

{

newArr[i] = MaxIndex(arr) + 1;

arr[MaxIndex(arr)] = 0;

}

PrintArr(newArr);

}

**תרגיל 19 למטה**

**תרגיל 19**

public static void Ex19()

{

int[] arr = new int[20];

Random rnd = new Random();

for (int i = 0; i < arr.Length; i++)

{

arr[i] = rnd.Next(-20, 21);

}

PrintArr(arr);

int[] newArr = new int[arr.Length + 1];

int sum = 0;

for (int i = 0; i < newArr.Length; i++)

{

newArr[i] = sum;

if (i < arr.Length)

sum += arr[i];

}

Console.WriteLine();

PrintArr(newArr);

}

**תרגיל 20 למטה**

**תרגיל 20**

1. **אינדקס ראשון שגדול ב1 מX ועוד אינדקס שקטן ב1 מX, כל פעם מגדילים כל אחד מהם ובודקים האם אחד מהם פנוי (יעיל יותר):**

public static int Ex20A(string[] arr, int x)

{

if (arr[x] == "")

return x;

int rightIndex = x+1, leftIndex = x-1;

bool found = false;

for (int i = 0; i < arr.Length/2 && !found; i++)

{

if (arr[rightIndex] == "")

return leftIndex;

else if (arr[leftIndex] == "")

return leftIndex;

rightIndex++;

leftIndex--;

}

return -1;

}

1. **לעבור על המערך מההתחלה ועד הסוף ולבדוק מה המושב הפנוי הקרוב ביותר לX (פחות יעיל):**

public static int Ex20B(string[] arr, int x)

{

if (arr[x] == "")

return x;

int closest = int.MaxValue;

for (int i = 0; i < arr.Length; i++)

{

if (arr[i] == "" && Math.Abs(x-i) < closest)

{

closest = i;

}

}

return closest;

}