שיעורי בית יסודות – לולאות WHILE זקיף ופירוק מספר, אופיר הופמן י3

**תרגיל 3**

int sum = 0;

int count = 0;

Console.WriteLine("Enter a three-digit number");

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

while (num > 99 && num < 1000)

{

if (num % 10 > num / 100)

{

sum += num;

}

if (((num / 10) % 10) % 2 == 0 && (num / 100) % 2 != 0)

{

count++;

}

Console.WriteLine("Enter a three-digit number");

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

}

Console.WriteLine(sum);

Console.WriteLine(count);

**תרגיל 4**

Console.WriteLine("Enter a number");

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

while(num > 9 && num < 100)

{

if (num % 10 == (num / 10) + 2)

{

Console.WriteLine(num);

}

Console.WriteLine("Enter a number");

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

}

**תרגיל 5**

Console.WriteLine("Enter a number");

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

while (num != 0)

{

bool is\_prime = true;

for (int i = 2; i < num && is\_prime; i++)

{

if (num % i == 0)

{

is\_prime = false;

}

}

if (is\_prime)

{

Console.WriteLine(num + " is prime");

}

Console.WriteLine("Enter a number");

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

}

**תרגיל 6**

Console.WriteLine("Enter a number");

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

while (num != 1)

{

int digit\_count = 0;

int digits\_sum = 0;

while (num != 0)

{

digits\_sum += num % 10;

digit\_count++;

num /= 10;

}

Console.WriteLine($"Number of digits: {digit\_count}");

Console.WriteLine($"Sum of digits: {digits\_sum}");

Console.WriteLine("Enter a number");

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

}

**תרגיל 7**

int count = 0;

Console.WriteLine("Enter a number");

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

while (num != -1)

{

if (num % 4 == 0 && num % 3 == 0)

{

count++;

}

Console.WriteLine("Enter a number");

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

}

Console.WriteLine($"{count} numbers are divisible by 4 and 3");

**תרגיל 8**

Console.WriteLine("Enter first number");

int num1 = int.Parse(Console.ReadLine());

Console.WriteLine("Enter second number");

int num2 = int.Parse(Console.ReadLine());

while (!(num1 == 100 && num2 == 100))

{

int sum\_num1 = ((num1 / 10) % 10) + (num1 % 10);

int sum\_num2 = ((num2 / 10) % 10) + (num2 % 10);

if (sum\_num1 > sum\_num2)

{

Console.WriteLine(num1);

}

else if (sum\_num2 > sum\_num1)

{

Console.WriteLine(num2);

}

Console.WriteLine("Enter first number");

num1 = int.Parse(Console.ReadLine());

Console.WriteLine("Enter second number");

num2 = int.Parse(Console.ReadLine());

}

**תרגיל 9**

int count = 0;

Console.WriteLine("Enter a number");

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

while (num != 10)

{

if (num == 90)

{

count++;

}

Console.WriteLine("Enter a number");

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

}

Console.WriteLine("There was " + count + " times 90");

**תרגיל 10**

Console.WriteLine("Enter a number");

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

while (num != -10)

{

if ((num % 10) % 5 == 0)

{

Console.WriteLine((num % 10) + 2);

}

else

{

Console.WriteLine(num % 10);

}

Console.WriteLine("Enter a number");

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

}

**פירוק מספרים**

**תרגיל 2**

Console.WriteLine("Enter a number");

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

Console.WriteLine("Enter digit number");

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

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

{

num /= 10;

}

if (num > 0)

{

Console.WriteLine(num % 10);

}

else

{

Console.WriteLine("-1");

}

**תרגיל 3**

bool all\_equal = true;

Console.WriteLine("Enter a number");

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

int prev\_dig = num % 10;

while (num > 0 && all\_equal)

{

if (num % 10 != prev\_dig)

{

all\_equal = false;

Console.WriteLine("DIFFERENT");

}

prev\_dig = num % 10;

num /= 10;

}

if (all\_equal)

{

Console.WriteLine("ALL EQUAL");

}

**תרגיל 4**

int count = 0;

Console.WriteLine("Enter a number");

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

Console.WriteLine("Enter a digit");

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

while (num > 0)

{

if (num % 10 == digit)

{

count++;

}

num /= 10;

}

Console.WriteLine(count);

**תרגיל 5.א.**

Console.WriteLine("Enter a number");

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

int max = 0;

int digit = 1;

int digit\_max = 0;

while (num > 0)

{

if (num % 10 > max)

{

max = num % 10;

digit\_max = digit;

}

num /= 10;

digit++;

}

Console.WriteLine(digit\_max);

**תרגיל 5.ב.**

// Call Random

Random rnd = new Random();

// biggest digit with highest digit location

int biggest\_digit\_max = 0;

// Repeat 10 times

for (int i = 1; i <= 10; i++)

{

int num = rnd.Next(100, 10001); // Get random number

int max = 0; // biggest digit

int digit = 1; // digit location counter

int digit\_of\_max = 0; // digit location of biggest digit

while (num > 0) // disassembly number

{

// check if units is bigger than current max digit

if (num % 10 > max)

{

max = num % 10;

// update location of bigget digit

digit\_of\_max = digit;

}

num /= 10; // ger rid of units

digit++;

}

// check if current digit location of the max digit is bigger than biggest location of max digit

if (digit\_of\_max > biggest\_digit\_max)

{

biggest\_digit\_max = digit\_of\_max;

}

Console.WriteLine(digit\_of\_max);

}

Console.WriteLine("The biggest is: " + biggest\_digit\_max);

**תרגיל 6.א.**

Console.WriteLine("Enter a number");

int num = int.Parse(Console.ReadLine()); // get number

int saveNum = num; // save number

int units = num % 10; // save units

int digits = 0; // digits counter

while (num > 0)

{

digits++;

num /= 10;

}

// Multiply units by 10 digits-1 times

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

{

units \*= 10;

}

// Get rid of units in saved number

saveNum /= 10;

// Add multiplied units to saved number

saveNum += units;

Console.WriteLine(saveNum);

**המשך למטה**

**תרגיל 6.ב.**

Random rnd = new Random(); // Call random

for (int i = 1; i <= 10; i++)

{

int num = rnd.Next(45, 140); // get number

Console.WriteLine(num); // print before changes

int saveNum = num; // save number

int units = num % 10; // save units

int digits = 0; // digits counter

while (num > 0)

{

digits++;

num /= 10;

}

// Multiply units by 10 digits-1 times

for (int x = 1; x < digits; x++)

{

units \*= 10;

}

// Get rid of units in saved number

saveNum /= 10;

// Add multiplied units to saved number

saveNum += units;

Console.WriteLine(saveNum);

}