Week 04

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Problem 401:

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#include <iostream>

using namespace std;

int main()

{

int x, i = 0;

int massiv[100];

//filling the array, while x not equal -1.

for (i; i <= 100; i++)

{

cin >> x;

if (x == -1)

break;

else

massiv[i] = x;

}

// output numbers of elements.

x = 0;

cout << i << endl;

// output the array

while (x <= i)

{

cout << massiv[x] << " ";

x++;

if (x == i)

break;

}

return 0;

}

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Problem 402:

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#include <iostream>

#include <math.h>

using namespace std;

int main()

{

// create variables and array

double x;

int i = 0;

double massiv[100];

// input numbers in array until 0

for (i; i <= 100; i++)

{

cin >> x;

if (x == 0)

break;

else

massiv[i] = x;

}

// output quantity of array and root elements of array

cout << i << endl;

for (i = i - 1; i >= 0; i--)

cout << sqrt(massiv[i]) << endl;

return 0;

}

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Problem 403:

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#include <iostream>

using namespace std;

int main()

{

// create variables and array

int N, answer = 1001;

cin >> N;

int massiv[1000]{};

const int size = N;

// input numbers in array

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

cin >> massiv[i];

/\* find minimum element in array, we compare the value of the array with

the variable answer and if the variable answer is greater then we assign it the value of the element\*/

for (int x = 0; x < size; x++)

{

if (answer >= massiv[x])

answer = massiv[x];

else if (x == size - 1) break;

}

cout << answer;

return 0;

}

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Problem 404:

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#include <iostream>

using namespace std;

int main()

{

// create variables and array

int N, min\_index, answer = 1001;

cin >> N;

int massiv[1000]{};

const int size = N;

// input numbers in array

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

cin >> massiv[i];

/\* find index of minimum element in array, we compare the value of the array with

the variable answer and if the variable answer is greater then we assign it the value of the element\*/

for (int x = 0; x < size; x++)

{

if (answer >= massiv[x])

{

answer = massiv[x];

min\_index = x;

}

else if (x == size - 1) break;

}

cout << min\_index;

return 0;

}

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Problem 405:

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#include <iostream>

using namespace std;

int main()

{

// create variables and array

int N, times = 0, answer = 0;

cin >> N;

int massiv[1000]{};

const int size = N;

// input numbers in array

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

cin >> massiv[i];

/\*find index of maximum element in array, we compare the value of the array with

the variable answer and if the variable answer is less then we assign it the value of the element\*/

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

{

if (answer <= massiv[i])

answer = massiv[i];

else if (i == size - 1) break;

}

// find number of elements that are maximal in the array.

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

{

if (answer == massiv[i])

times++;

}

cout << times;

return 0;

}

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Problem 406:

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#include <iostream>

using namespace std;

int main()

{

// create variables and array

int N, times = 0;

cin >> N;

char massiv[1000]{};

const int size = N;

// input elements in array

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

cin >> massiv[i];

// if element equal A then we are increasing variable "times"

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

{

if (massiv[i] == 'A')

times++;

}

cout << times;

return 0;

}

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Problem 407:

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#include <iostream>

using namespace std;

int main()

{

// create variables and array

char mass[1000];

int N, i, j, times = 0;

cin >> N;

const int size = N;

// input elements in array

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

cin >> mass[i];

//sorting the array by ascending using the swap function which change the values

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

for (j = 0; j < size; j++)

if (mass[i] <= mass[j])

swap(mass[i], mass[j]);

// if element of array equal next element, then we continue this iteration

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

{

if (mass[i] == mass[i + 1])

continue;

else

times++;

}

// output number of elements that do not have pairs.

cout << times << endl;

times = 0;

// if element of array equal next element, then we are increasing variable "times", else we output element of array and quantity

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

{

if (mass[i] == mass[i + 1])

{

times++;

}

else

{

cout << mass[i] << " " << times + 1 << endl;

times = 0;

}

}

return 0;

}

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Problem 408:

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#include <iostream>

using namespace std;

int main()

{

// create variables and array

int N;

cin >> N;

int massiv[1000]{};

const int size = N;

// input numbers in array

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

cin >> massiv[i];

//sorting the array in descending order using the swap function that changes the values

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

{

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

{

if (massiv[i] <= massiv[j])

swap(massiv[i], massiv[j]);

}

}

//output numbers in array

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

cout << massiv[i] << " ";

return 0;

}

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Problem 409:

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#include <iostream>

using namespace std;

int main()

{

// create variables and two - dimensional array

int N;

cin >> N;

int massiv\_date[1000][3]{};

const int size = N;

// input elements in two - dimensional array

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

for (int j = 0; j < 3; j++)

cin >> massiv\_date[i][j];

// sort the two - dimensional array

for (int i = 0; i < size - 1; i++)

{

for (int j = i; j < size; j++)

{

if (massiv\_date[i][0] > massiv\_date[j][0])

for (int q = 0; q < 3; q++)

swap(massiv\_date[i][q], massiv\_date[j][q]);

else if (massiv\_date[i][0] == massiv\_date[j][0])

{

if (massiv\_date[i][1] > massiv\_date[j][1])

for (int q = 0; q < 3; q++)

swap(massiv\_date[i][q], massiv\_date[j][q]);

else if (massiv\_date[i][1] == massiv\_date[j][1])

if (massiv\_date[i][2] > massiv\_date[j][2])

for (int q = 0; q < 3; q++)

swap(massiv\_date[i][q], massiv\_date[j][q]);

}

}

}

// output elements in two - dimensional array

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

{

for (int j = 0; j < 3; j++)

{

cout << massiv\_date[i][j] << " ";

}

cout << endl;

}

return 0;

}

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Problem 410:

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#include <iostream>

#include <cmath>

using namespace std;

int main()

{

// create variables and array

int number, x, i;

cin >> number;

x = 0;

// check whether the number is prime or not

for (i = 2; i <= sqrt(abs(number)); i++)

{

if (number % i == 0) {

x++;

break;

}

}

// if x equal 1,then number isn't prime, else number is prime

if (x == 1)

cout << "NO";

else

cout << "YES";

return 0;

}

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Problem 411:

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#include <iostream>

using namespace std;

int main()

{

// create variable and array

int number;

cin >> number;

int massiv[10000]{};

// input numbers in array

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

massiv[i] = i;

// check whether the number is prime or not,if number is prime ,then output number

for (int i = 2; i <= number; i++)

{

if (massiv[i] != 0)

{

cout << massiv[i] << " ";

for (int j = i \* i; j < number + 1; j += i)

massiv[j] = 0;

}

}

return 0;

}