Qno.1)

#include <stdio.h>

#define MAX\_NUMBERS 100

int main() {

int numbers[MAX\_NUMBERS]; // array to store numbers

int numberCount; // number of elements in the array

// read in numbers

printf("Enter the number of integers to sort: ");

scanf("%d", &numberCount);

if (numberCount > MAX\_NUMBERS) {

printf("Too many numbers, the maximum is %d\n", MAX\_NUMBERS);

return 1;

}

printf("Enter %d integers: \n", numberCount);

for (int i = 0; i < numberCount; i++) {

scanf("%d", &numbers[i]);

}

// bubble sort

int temp;

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

for (int j = 0; j < numberCount - i - 1; j++) {

if (numbers[j] > numbers[j + 1]) {

temp = numbers[j];

numbers[j] = numbers[j + 1];

numbers[j + 1] = temp;

}

}

}

// print sorted numbers

printf("Sorted numbers: \n");

for (int i = 0; i < numberCount; i++) {

printf("%d ", numbers[i]);

}

printf("\n");

return 0;

}

Qno.2)

#include <stdio.h>

#define MAX\_NUMBERS 100

int main() {

int numbers[MAX\_NUMBERS]; // array to store numbers

int numberCount; // number of elements in the array

// read in numbers

printf("Enter the number of integers to sort: ");

scanf("%d", &numberCount);

if (numberCount > MAX\_NUMBERS) {

printf("Too many numbers, the maximum is %d\n", MAX\_NUMBERS);

return 1;

}

printf("Enter %d integers: \n", numberCount);

for (int i = 0; i < numberCount; i++) {

scanf("%d", &numbers[i]);

}

// bubble sort for odd numbers

int temp;

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

for (int j = 0; j < numberCount - i - 1; j++) {

if ((numbers[j] % 2 != 0) && (numbers[j + 1] % 2 != 0) && (numbers[j] > numbers[j + 1])) {

temp = numbers[j];

numbers[j] = numbers[j + 1];

numbers[j + 1] = temp;

}

}

}

// bubble sort for even numbers

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

for (int j = 0; j < numberCount - i - 1; j++) {

if ((numbers[j] % 2 == 0) && (numbers[j + 1] % 2 == 0) && (numbers[j] > numbers[j + 1])) {

temp = numbers[j];

numbers[j] = numbers[j + 1];

numbers[j + 1] = temp;

}

}

}

// print sorted numbers

printf("Sorted odd numbers: \n");

for (int i = 0; i < numberCount; i++) {

if (numbers[i] % 2 != 0) {

printf("%d ", numbers[i]);

}

}

printf("\n");

printf("Sorted even numbers: \n");

for (int i = 0; i < numberCount; i++) {

if (numbers[i] % 2 == 0) {

printf("%d ", numbers[i]);

}

}

printf("\n");

return 0;

}

Qno.3)

#include <stdio.h>

int main() {

int n; // number of cuts

// read in the number of cuts

printf("Enter the number of cuts: ");

scanf("%d", &n);

// initialize the number of pieces to 2

int pieces = 2;

// repeat n-1 times to calculate the total number of pieces

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

// double the number of pieces for each cut

pieces \*= 2;

}

// print the result

printf("After %d cuts, there will be %d pieces.\n", n, pieces);

return 0;

}

Qno.4)

#include <stdio.h>

int countOnes(int num) {

int count = 0;

while (num > 0) {

if (num % 2 == 1) count++;

num = num / 2;

}

return count;

}

int main() {

int decimal;

// Read decimal number from user

printf("Enter decimal number: ");

scanf("%d", &decimal);

// Call the countOnes function to get the number of 1s in the binary representation of the decimal

int ones = countOnes(decimal);

// Print the result

printf("There are %d ones in the given decimal number\n", ones);

return 0;

}

Thank you.