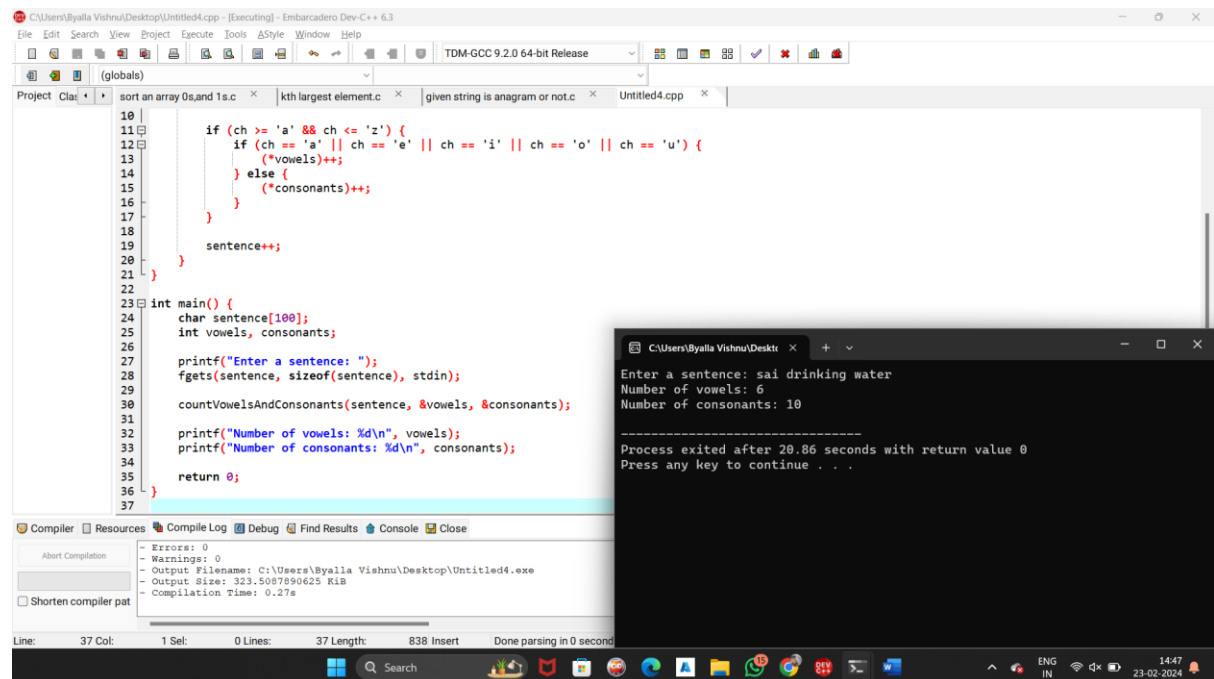


Day 3

Test

## 1. Count the Number of Vowels and Consonants in a Sentence



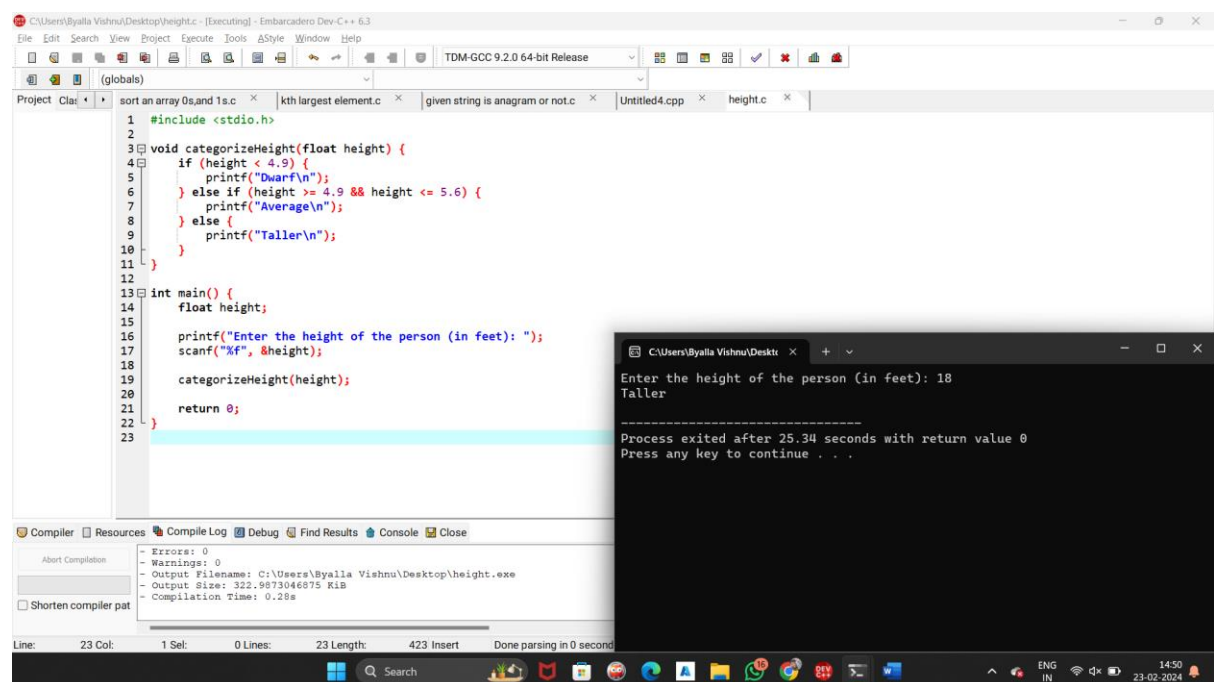
The screenshot shows a C++ IDE with a project named 'Untitled4.cpp'. The code defines a function `countVowelsAndConsonants` that takes a character array `str` and two integer pointers `vowels` and `consonants`. It iterates through the string, incrementing the respective counter for each vowel or consonant. The `main` function prompts the user to enter a sentence, reads it into a character array, and then calls the counting function. The output shows the sentence "sai drinking water" with 6 vowels and 10 consonants.

```
10
11
12     if (ch >= 'a' && ch <= 'z') {
13         if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
14             (*vowels)++;
15         } else {
16             (*consonants)++;
17         }
18     }
19     sentence++;
20 }
21 }
22
23 int main() {
24     char sentence[100];
25     int vowels, consonants;
26
27     printf("Enter a sentence: ");
28     fgets(sentence, sizeof(sentence), stdin);
29
30     countVowelsAndConsonants(sentence, &vowels, &consonants);
31
32     printf("Number of vowels: %d\n", vowels);
33     printf("Number of consonants: %d\n", consonants);
34
35     return 0;
36 }
37
```

Compiler: TDM-GCC 9.2.0 64-bit Release  
Compile Log: 0 Errors, 0 Warnings, 0 Output File Name: C:\Users\Byalla Vishnu\Desktop\Untitled4.exe, Output Size: 323,508,789,0625 KiB, Compilation Time: 0.27s

Process exited after 20.86 seconds with return value 0  
Press any key to continue . . .

## 2. Accept the Height of a Person & Categorize as Taller, Dwarf & Average



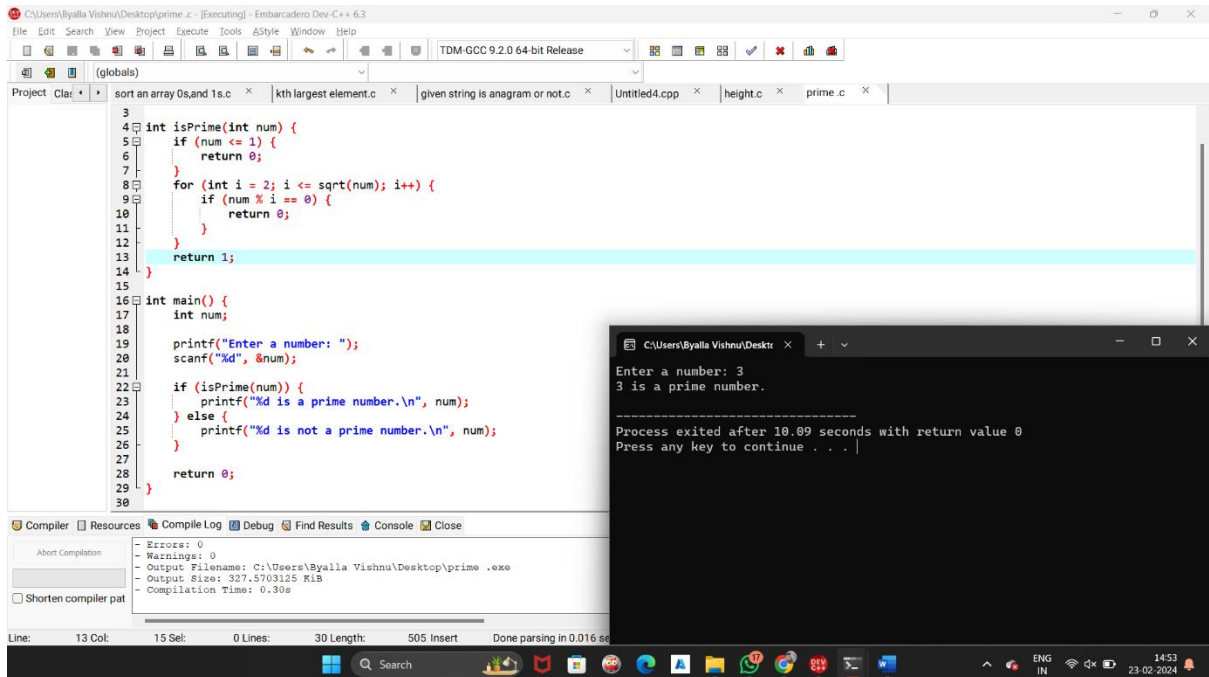
The screenshot shows a C++ IDE with a project named 'height.c'. The code defines a function `categorizeHeight` that takes a float `height` and prints the category: "Dwarf" for heights less than 4.9, "Average" for heights between 4.9 and 5.6, and "Taller" for heights greater than 5.6. The `main` function prompts the user to enter the height in feet, reads it, and then calls the categorization function. The output shows the height 18, which is categorized as "Taller".

```
1 #include <stdio.h>
2
3 void categorizeHeight(float height) {
4     if (height < 4.9) {
5         printf("Dwarf\n");
6     } else if (height >= 4.9 && height <= 5.6) {
7         printf("Average\n");
8     } else {
9         printf("Taller\n");
10    }
11 }
12
13 int main() {
14     float height;
15
16     printf("Enter the height of the person (in feet): ");
17     scanf("%f", &height);
18
19     categorizeHeight(height);
20
21     return 0;
22 }
23
```

Compiler: TDM-GCC 9.2.0 64-bit Release  
Compile Log: 0 Errors, 0 Warnings, 0 Output File Name: C:\Users\Byalla Vishnu\Desktop\height.exe, Output Size: 322,987,304,6875 KiB, Compilation Time: 0.28s

Process exited after 25.34 seconds with return value 0  
Press any key to continue . . .

### 3. Prime Number



```
3
4 int isPrime(int num) {
5     if (num <= 1) {
6         return 0;
7     }
8     for (int i = 2; i <= sqrt(num); i++) {
9         if (num % i == 0) {
10            return 0;
11        }
12    }
13    return 1;
14 }
15
16 int main() {
17     int num;
18
19     printf("Enter a number: ");
20     scanf("%d", &num);
21
22     if (isPrime(num)) {
23         printf("%d is a prime number.\n", num);
24     } else {
25         printf("%d is not a prime number.\n", num);
26     }
27
28     return 0;
29 }
30
```

Compiler | Resources | Compile Log | Debug | Find Results | Console | Close

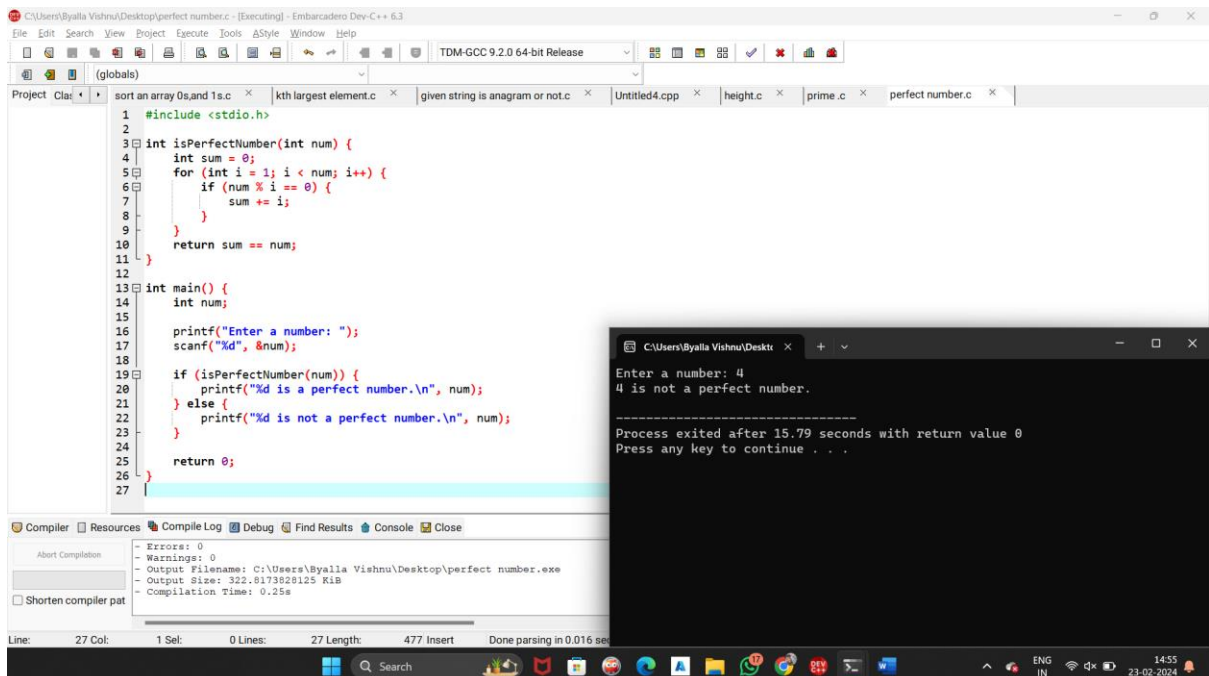
Errors: 0  
Warnings: 0  
Output Filename: C:\Users\Byalla Vishnu\Desktop\prime.exe  
Output Size: 327,570,3125 KiB  
Compilation Time: 0.30s

Line: 13 Col: 15 Sel: 0 Lines: 30 Length: 505 Insert Done parsing in 0.016 s

Enter a number: 3  
3 is a prime number.

Process exited after 10.09 seconds with return value 0  
Press any key to continue . . .

### 4. Check Whether a Given Number is Perfect Number



```
1 #include <stdio.h>
2
3 int isPerfectNumber(int num) {
4     int sum = 0;
5     for (int i = 1; i < num; i++) {
6         if (num % i == 0) {
7             sum += i;
8         }
9     }
10    return sum == num;
11 }
12
13 int main() {
14     int num;
15
16     printf("Enter a number: ");
17     scanf("%d", &num);
18
19     if (isPerfectNumber(num)) {
20         printf("%d is a perfect number.\n", num);
21     } else {
22         printf("%d is not a perfect number.\n", num);
23     }
24
25     return 0;
26 }
27
```

Compiler | Resources | Compile Log | Debug | Find Results | Console | Close

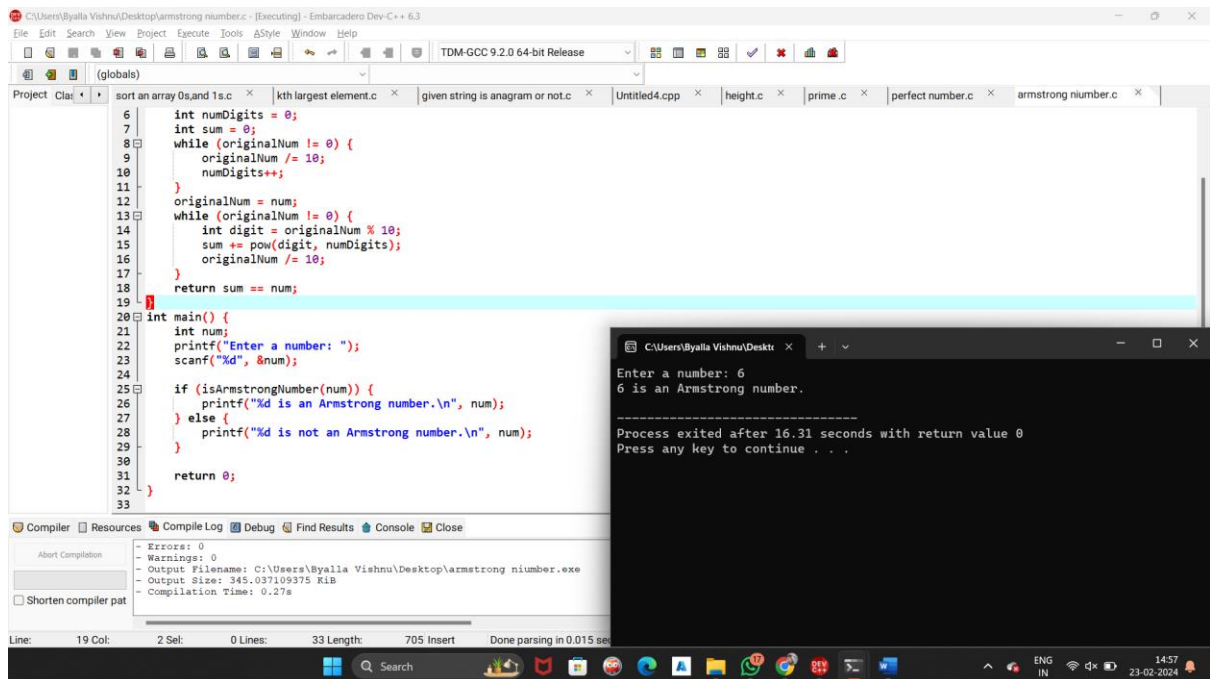
Errors: 0  
Warnings: 0  
Output Filename: C:\Users\Byalla Vishnu\Desktop\perfect number.exe  
Output Size: 322,817,382,9125 KiB  
Compilation Time: 0.25s

Line: 27 Col: 1 Sel: 0 Lines: 27 Length: 477 Insert Done parsing in 0.016 s

Enter a number: 4  
4 is not a perfect number.

Process exited after 15.79 seconds with return value 0  
Press any key to continue . . .

## 5. 5. Check Armstrong Number



The screenshot displays an IDE window titled "C:\Users\Byalla Vishnu\Desktop\armstrong number.c - [Executing] - Embarcadero Dev-C++ 6.3". The code in the editor is as follows:

```
6 int numDigits = 0;
7 int sum = 0;
8 while (originalNum != 0) {
9     originalNum /= 10;
10    numDigits++;
11 }
12 originalNum = num;
13 while (originalNum != 0) {
14     int digit = originalNum % 10;
15     sum += pow(digit, numDigits);
16     originalNum /= 10;
17 }
18 return sum == num;
19
20 int main() {
21     int num;
22     printf("Enter a number: ");
23     scanf("%d", &num);
24
25     if (isArmstrongNumber(num)) {
26         printf("%d is an Armstrong number.\n", num);
27     } else {
28         printf("%d is not an Armstrong number.\n", num);
29     }
30
31     return 0;
32 }
```

The console output shows the program's execution:

```
Enter a number: 6
6 is an Armstrong number.
-----
Process exited after 16.31 seconds with return value 0
Press any key to continue . . .
```

The IDE's status bar at the bottom indicates "Line: 19 Col: 2 Sel: 0 Lines: 33 Length: 705 Insert Done parsing in 0.015 sec". The Windows taskbar at the bottom shows the system clock as 14:57 on 23-02-2024.