

ASCII (American Standard Code for Information Interchange)

ASCII is a **character encoding standard** that represents text in computers, communication devices, and other electronic systems. Each character (letters, numbers, punctuation, etc.) is assigned a unique numeric code, ranging from 0 to 127. For example, the **capital letter 'A'** has an ASCII value of **65**, and the digit **'0'** has an ASCII value of **48**. This standard allows computers to store and manipulate text easily.

Below are two simple programs demonstrating about ASCII:

1) Program to Print ASCII Values of All Characters.

```
#include <stdio.h>
int main() {
    int i;
    printf("ASCII values of all characters:\n");
    for (i = 0; i < 128; i++) {
        printf("Character: %c, ASCII value: %d\n", i, i);
    }
    return 0;
}
```

o/p:

```
pavanp@pavan-Lenovo-V15-62-ALC-Ua:~/Documents$ gcc file.c
pavanp@pavan-Lenovo-V15-62-ALC-Ua:~/Documents$ ./a.out
ASCII values of all characters:
Character: , ASCII value: 0
Character: , ASCII value: 1
Character: , ASCII value: 2
Character: , ASCII value: 3
Character: , ASCII value: 4
Character: , ASCII value: 5
Character: , ASCII value: 6
Character: , ASCII value: 7
Character: , ASCII value: 8
Character: , ASCII value: 9
Character: , ASCII value: 10
Character: , ASCII value: 11
Character: , ASCII value: 12
Character: , ASCII value: 13
Character: , ASCII value: 14
Character: , ASCII value: 15
Character: , ASCII value: 16
Character: , ASCII value: 17
Character: , ASCII value: 18
Character: , ASCII value: 19
Character: , ASCII value: 20
Character: , ASCII value: 21
Character: , ASCII value: 22
```

```
Character: , ASCII value: 27
Character: , ASCII value: 28
Character: , ASCII value: 29
Character: , ASCII value: 30
Character: , ASCII value: 31
Character: , ASCII value: 32
Character: !, ASCII value: 33
Character: ", ASCII value: 34
Character: #, ASCII value: 35
Character: $, ASCII value: 36
Character: %, ASCII value: 37
Character: &, ASCII value: 38
Character: ', ASCII value: 39
Character: (, ASCII value: 40
Character: ), ASCII value: 41
Character: *, ASCII value: 42
Character: +, ASCII value: 43
Character: ,, ASCII value: 44
Character: -, ASCII value: 45
Character: ., ASCII value: 46
Character: /, ASCII value: 47
Character: 0, ASCII value: 48
Character: 1, ASCII value: 49
Character: 2, ASCII value: 50
Character: 3, ASCII value: 51
Character: 4, ASCII value: 52
Character: 5, ASCII value: 53
Character: 6, ASCII value: 54
Character: 7, ASCII value: 55
Character: 8, ASCII value: 56
Character: 9, ASCII value: 57
Character: :, ASCII value: 58
```

2)Program to Find the ASCII Value of a Character Input by the User

```
#include <stdio.h>
int main() {
    char ch;
    printf("Enter a character: ");
    scanf("%c", &ch);
    printf("The ASCII value of %c is %d\n", ch, ch);
    return 0;
}
```

o/p:

```
pavanp@pavan-Lenovo-V15-G2-ALC-Ua:~/Documents$ gcc file3.c
pavanp@pavan-Lenovo-V15-G2-ALC-Ua:~/Documents$ ./a.out
Enter a character: r
The ASCII value of r is 114
```

program01 explanation in points

- 1. Loop Through ASCII Values:** The program uses a 'for' loop that iterates from '0' to '127', covering all possible ASCII values (0-127).
- 2. Character and ASCII Output:** Within each iteration, the program prints both the character and its corresponding ASCII value using `printf`. The character is represented by 'i', and its ASCII value is simply 'i' itself.
- 3. Display All Characters:** As the loop runs, it outputs each character and its ASCII value, providing a full list of all standard ASCII characters along with their numeric codes.

program02 explanation in points

- 1. User Input:** The program prompts the user to enter a character, which is stored in a variable 'ch' using 'scanf("%c", &ch);'.
- 2. ASCII Value Retrieval:** The ASCII value of the entered character is automatically obtained by using the variable 'ch' in 'printf("%d", ch);', where '%d' converts the character to its corresponding ASCII value.
- 3. Output:** The program prints the character along with its ASCII value, showing the numeric code that represents the input character in the ASCII table.