Characters and ASCII code/Unicode

We already talked about character, comparing characters and ASCII code in 15\_Notes\_If2.doc. Please, review that document.

ASCII stands for American Standard Code for Information Interchange.

It is a numeric value given to different characters and symbols, for computers to store and manipulate. For example: ASCII value of the letter 'A' is 65.

For example:

# Program to find the ASCII value of the given character

# Change this value for a different result

ch = 'p'

print("The ASCII value of '" + ch + "' is",ord(ch))

ch = 'Z'

print("The ASCII value of '" + ch + "' is",ord(ch))

The ASCII value of 'p' is 112

The ASCII value of 'Z' is 90

Here we have used **ord()** function to convert a character to an integer (ASCII value). This function actually returns the Unicode code point of that character.

Unicode is also an encoding technique that provides a unique number to a character. While ASCII only encodes 128 characters, current Unicode has more than 100,000 characters from hundreds of scripts.

We can modify the code above to get character from the ASCII value using the **chr()** function as shown below.

For example:

# Program to find the character of the given ASCII value

asciiVal = 40

print("\'"+chr(asciiVal)+"\' has the ASCII value of", asciiVal)

asciiVal = 65

print("\'"+chr(asciiVal)+"\' has the ASCII value of", asciiVal)

'(' has the ASCII value of 40

'A' has the ASCII value of 65

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Decimal** | **Character** |  | **Decimal** | **Character** |  | **Decimal** | **Character** |  | **Decimal** | **Character** |
| 032 | [Space](https://en.wikipedia.org/wiki/Space_(punctuation)) |  | 056 | [8](https://en.wikipedia.org/wiki/8_(number)) |  | 080 | [P](https://en.wikipedia.org/wiki/P) |  | 104 | H |
| 033 | [!](https://en.wikipedia.org/wiki/Exclamation_mark) |  | 057 | [9](https://en.wikipedia.org/wiki/9_(number)) |  | 081 | [Q](https://en.wikipedia.org/wiki/Q) |  | 105 | I |
| 034 | [“](https://en.wikipedia.org/wiki/Quotation_mark) |  | 058 | [:](https://en.wikipedia.org/wiki/Colon_(punctuation)) |  | 082 | [R](https://en.wikipedia.org/wiki/R) |  | 106 | J |
| 035 | # |  | 059 | [;](https://en.wikipedia.org/wiki/Semicolon) |  | 083 | [S](https://en.wikipedia.org/wiki/S) |  | 107 | K |
| 036 | [$](https://en.wikipedia.org/wiki/Dollar_sign) |  | 060 | [<](https://en.wikipedia.org/wiki/Less-than_sign) |  | 084 | [T](https://en.wikipedia.org/wiki/T) |  | 108 | L |
| 037 | [%](https://en.wikipedia.org/wiki/Percent_sign) |  | 061 | [=](https://en.wikipedia.org/wiki/Equal_sign) |  | 085 | [U](https://en.wikipedia.org/wiki/U) |  | 109 | M |
| 038 | [&](https://en.wikipedia.org/wiki/Ampersand) |  | 062 | [>](https://en.wikipedia.org/wiki/Greater-than_sign) |  | 086 | [V](https://en.wikipedia.org/wiki/V) |  | 110 | N |
| 039 | [‘](https://en.wikipedia.org/wiki/Apostrophe) |  | 063 | [?](https://en.wikipedia.org/wiki/Question_mark) |  | 087 | [W](https://en.wikipedia.org/wiki/W) |  | 111 | O |
| 040 | [(](https://en.wikipedia.org/wiki/Bracket#Parentheses_.28_.29) |  | 064 | [@](https://en.wikipedia.org/wiki/At_sign) |  | 088 | [X](https://en.wikipedia.org/wiki/X) |  | 112 | P |
| 041 | [)](https://en.wikipedia.org/wiki/Bracket#Parentheses_.28_.29) |  | 065 | [A](https://en.wikipedia.org/wiki/A) |  | 089 | [Y](https://en.wikipedia.org/wiki/Y) |  | 113 | Q |
| 042 | [\*](https://en.wikipedia.org/wiki/Asterisk) |  | 066 | [B](https://en.wikipedia.org/wiki/B) |  | 090 | [Z](https://en.wikipedia.org/wiki/Z) |  | 114 | R |
| 043 | [+](https://en.wikipedia.org/wiki/Plus_sign) |  | 067 | [C](https://en.wikipedia.org/wiki/C) |  | 091 | [[](https://en.wikipedia.org/wiki/Bracket#Box_brackets_or_square_brackets_.5B_.5D) |  | 115 | S |
| 044 | [,](https://en.wikipedia.org/wiki/Comma_(punctuation)) |  | 068 | [D](https://en.wikipedia.org/wiki/D) |  | 092 | [\](https://en.wikipedia.org/wiki/Backslash) |  | 116 | T |
| 045 | [-](https://en.wikipedia.org/wiki/Hyphen-minus) |  | 069 | [E](https://en.wikipedia.org/wiki/E) |  | 093 | []](https://en.wikipedia.org/wiki/Bracket#Box_brackets_or_square_brackets_.5B_.5D) |  | 117 | U |
| 046 | [.](https://en.wikipedia.org/wiki/Full_stop) |  | 070 | [F](https://en.wikipedia.org/wiki/F) |  | 094 | [^](https://en.wikipedia.org/wiki/Circumflex_accent) |  | 118 | V |
| 047 | [/](https://en.wikipedia.org/wiki/Slash_(punctuation)) |  | 071 | [G](https://en.wikipedia.org/wiki/G) |  | 095 | [\_](https://en.wikipedia.org/wiki/Underscore) |  | 119 | W |
| 048 | 0 |  | 072 | [H](https://en.wikipedia.org/wiki/H) |  | 096 | [`](https://en.wikipedia.org/wiki/Grave_accent) |  | 120 | X |
| 049 | [1](https://en.wikipedia.org/wiki/1_(number)) |  | 073 | [I](https://en.wikipedia.org/wiki/I) |  | 097 | A |  | 121 | Y |
| 050 | [2](https://en.wikipedia.org/wiki/2_(number)) |  | 074 | [J](https://en.wikipedia.org/wiki/J) |  | 098 | B |  | 122 | Z |
| 051 | [3](https://en.wikipedia.org/wiki/3_(number)) |  | 075 | [K](https://en.wikipedia.org/wiki/K) |  | 099 | C |  | 123 | [{](https://en.wikipedia.org/wiki/Bracket#Curly_brackets_or_braces_.7B_.7D) |
| 052 | [4](https://en.wikipedia.org/wiki/4_(number)) |  | 076 | [L](https://en.wikipedia.org/wiki/L) |  | 100 | D |  | 124 | [|](https://en.wikipedia.org/wiki/Vertical_bar) |
| 053 | [5](https://en.wikipedia.org/wiki/5_(number)) |  | 077 | [M](https://en.wikipedia.org/wiki/M) |  | 101 | E |  | 125 | [}](https://en.wikipedia.org/wiki/Bracket#Curly_brackets_or_braces_.7B_.7D) |
| 054 | [6](https://en.wikipedia.org/wiki/6_(number)) |  | 078 | [N](https://en.wikipedia.org/wiki/N) |  | 102 | F |  | 126 | [~](https://en.wikipedia.org/wiki/Tilde) |
| 055 | [7](https://en.wikipedia.org/wiki/7_(number)) |  | 079 | [O](https://en.wikipedia.org/wiki/O) |  | 103 | G |  |  |  |