

# Char

- Char represent a single such as the letter 'a' , the digit '6', or a semicolon(';')
- Character literals use single quotes such as 'A' or 'Z'
- You can also declare char variables to be unsigned
  - Can be used to explicitly tell the compiler that a particular variable is a signed quantity
- We will talk about a character string in another lecture , much different than a single character.

## Declaring a char

```
char broiled ;           /*declare a char variable*/
broiled = 'T';           /*OK */
broiled = T;             /*NO! Thinks T is a variable */
broiled = "T";           /*No! Thinks "T" is a string */
```

- If you omit the quotes, the compiler thinks that T is the name of a variable.
- If you use double quotes , its thinks you are using a string
- You can also use the numerical code to assign values

```
char grade = 65;         /* ok for ASCII, but poor style */
```

## Escape Characters

- C contains special characters that represents actions
  - Backspacing
  - Going to the next line
  - Making the terminal bell ring ( or speak Beep)
- We can represent these actions by using special symbol sequences
  - Called escape sequences
- Escape sequences ,must be enclosed in single quotes when assigned to a character variable/  
char x = '\n':

| Escape sequence ↕            | Hex value in ASCII ↕ | Character represented ↕   |
|------------------------------|----------------------|---|
| \a                           | 07                   | Alert (Beep, Bell) (added in C89) <sup>[1]</sup>  |
| \b                           | 08                   | Backspace   |
| \e <sup>note 1</sup>         | 1B                   | Escape character  |
| \f                           | 0C                   | Formfeed Page Break   |
| \n                           | 0A                   | Newline (Line Feed); see notes below  |
| \r                           | 0D                   | Carriage Return   |
| \t                           | 09                   | Horizontal Tab  |
| \v                           | 0B                   | Vertical Tab  |
| \\                           | 5C                   | Backslash   |
| \'                           | 27                   | Apostrophe or single quotation mark   |
| \"                           | 22                   | Double quotation mark   |
| \?                           | 3F                   | Question mark (used to avoid trigraphs)   |
| \nnn <sup>note 2</sup>       | any                  | The byte whose numerical value is given by <i>nnn</i> interpreted as an <a href="#">octal</a> number        |
| \xhh...                      | any                  | The byte whose numerical value is given by <i>hh...</i> interpreted as a <a href="#">hexadecimal</a> number |
| \uhhhh <sup>note 3</sup>     | none                 | <a href="#">Unicode code point</a> below 10000 hexadecimal  |
| \Uhhhhhhhh <sup>note 4</sup> | none                 | Unicode code point where <i>h</i> is a hexadecimal digit  |