Metacharacters

- These are the special characters that are first interpreted by the shell before passing the same to the command. They are also known as shell wildcards.

  - **$** Variable Substitution or expand the value of Variable.
  - **>** used for Output Redirection.
  - **>>** used for Output Redirection to append.
  - **<** Input redirection.
  - **<<** used for input redirection and is also known as here document.
  - ***** Match any number of characters, Substitution wildcard for zero or more chracters
  - **?** Match one character, Substitution wildcard for 1 character
  - **[]** Match range of characters, Substitution wildcard for any character between brackets
  - **`cmd`** Replace cmd with the command to execute and will execute that, Substitution wildcard for command execution
  - **$(cmd)** Replace cmd with the command to execute and will execute that, Substitution wildcard for command execution

Metacharacters

- **|** Pipe is a Redirection to send the output of one command/program/process to another command/program/process for further processing.
- **;** Command separator is used to execute 2 or more commands with one statement.
- **||** OR conditional execution of the commands.
- **&&** AND conditional execution of the commands.
- **()** Groups the command in to one output stream.
- **&** executes command in the background and will display the assigned Pid.
- **#** to comment something.
- **$** To expand the value of a variable.
- **** used to escape the interpretation of a character or to prevent that.

A **Backslash('\')** is the bash escape character. Any character immediately following the backslash loses its special meaning and any letter following the backslash gains its special meaning.

Metacharacters

- echo "Quotation"
- echo \"Quotation\"
- echo "a\bbbbb"
- echo "a\nbbbb"
- echo hi \> file.txt

The Backslash Escaped Characters

\a *alert (bell)*

\b *backspace*

\e *an escape character*

\f *form feed*

\n *new line*

\r *carriage return*

\t *horizontal tab*

\v *vertical tab*

\\ *backslash*

\' *single quote*

\nnn *the eight-bit character whose value is the octal value nnn (one to three digits)*

\xHH *the eight-bit character whose value is the hexadecimal value HH (one or two hex digits)*

Pipes

- Pipe is used to combine two or more commands, and in this, the output of one command acts as input to another command, and this command's output may act as input to the next command and so on.

- Pipes are unidirectional **i.e data flows from left to right through the pipeline.**

- Syntax :
  - command_1 | command_2 | command_3 | …. | command_N

Pipes

- cat file.txt | head -7 | tail -5
- ls | wc –w
- cat | sort