IPAdr

# Objective

Explore IP addresses both IPv4 and IPv6. The problem illustrates the benefit of clear interface design supplemented by implementation; also known as polymorphism.

References

# User needs and requirements

This projectlet is to fulfill the need of software engineers.

| Id | Need/Requirement |
| --- | --- |
| **1** | The utility shall be a command line utility. |

# Specifications

| Id | Specification |
| --- | --- |
| 1 | Subcommand v4 specifies the rest of the command line uses the v4 context. |
| 2 | Subcommand v6 specifies the rest of the command line uses the v6 context |
| 3 | The argument is an IP address. |
| 4 | The argument is verified for proper syntax. Preliminary semantic check follows. |
| 5 | Command v4 with the switch -m (or —mask) indicates that the argument is a subnet mask. The argument is syntax checked and semantically verified |
| 6 | If a value is provided for -m in addition to the argument IP address, then the specified mask and the address are analyzed together. |
| 6 | Given a valid v4 IP address, the utility should analyze and report the following: |
|  | - Class of the IP address |
|  | - Is it routable / private |
|  | - if the subnet can be inferred, network id and node id |
|  | - if the subnet can be inferred - the broadcast address |
|  | - if the subnet can be inferred - what is the network mask |
|  | - if the address is a “reserved” address - list what is the special significance |
|  |  |

# Example usage

Notes

Subnetting -

.0 is bad - network id

.ff -> broadcast