

Widening and Narrowing

- This process is related to conversion of datatype into data item
- Storing the data of smaller size datatype into a larger size datatype is called **WIDENING** this process is done automatically by the compiler
- The datatype in widening must be compatible , that is the source must be smaller or equal to the destination
- Widening is also called **UPCASTING**
- If these two points are not satisfied then widening must be done explicitly means by ourself this process is called **NARROWING**
- This occur when source data is larger that destination data size
- An example of this is float value cannot be stored in integer value but integer can be stored inside float
- Narrowing is also called **DOWN CASTING**

- The data type which are compatible with each other is given below , source is in right hand side , destination is on left hand side

| | byte | short | int | long | float | double | char | boolean |
|---------|------|-------|-----|------|-------|--------|------|---------|
| byte | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| short | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ |
| int | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| long | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ | ✗ |
| float | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ |
| double | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ |
| char | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| boolean | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |