by Kunal Sir

Assignment : Type Casting

Learning Objectives

By completing this assignment, students will be able to:

- Understand what type casting is in Java
- Differentiate between implicit (widening) and explicit (narrowing) type casting
- Predict output of Java programs involving type casting
- Avoid common mistakes related to data loss and casting

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Part A: Tricky MCQs (15 Questions)

1. What will be the output?

```
int a = 10;
double b = a;
System.out.println(b);
```

A) 10
B) 10.0
C) Compilation error
D) Runtime error

---

2. Which type of casting is happening below?

```
float f = 25;
```

A) Explicit casting
B) Narrowing casting
C) Implicit casting
D) Invalid casting

---

3. What will be the output?

```
double d = 9.8;
int i = (int) d;
System.out.println(i);
```

A) 9.8
B) 10
C) 9
D) Compilation error

---

4. Which of the following conversions may cause data loss?

A) int → long
B) float → double
C) double → int
D) char → int

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5. What will be the output?

```
char ch = 'A';
int x = ch;
System.out.println(x);
```

A) A
B) 65
C) Compilation error
D) Runtime error

---

6. Which casting is done automatically by JVM?

A) Explicit
B) Narrowing
C) Manual
D) Implicit

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7. What will be printed?

```
int a = 130;
byte b = (byte) a;
System.out.println(b);
```

A) 130
B) -126
C) 127
D) Compilation error

---

8. Which statement is TRUE?

A) Explicit casting is always safe
B) Implicit casting may cause data loss
C) Explicit casting can cause data loss
D) Java does not support type casting

---

9. What happens if explicit casting is not done where required?

A) Program runs normally
B) Runtime error
C) Logical error
D) Compilation error

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10. What will be the output?

```
int a = 5;
int b = 2;
double c = a / b;
System.out.println(c);
```

A) 2.5
B) 2
C) 2.0
D) Compilation error

---

11. To get correct decimal output in Q10, what should be done?

A) Cast a to double
B) Cast b to int
C) Use long
D) No change needed

---

12. Which conversion is NOT allowed implicitly?

A) int → double
B) byte → int
C) double → float
D) char → int

---

13. What will be the output?

```
float f = 7.9f;
int i = (int)(f + 0.5);
System.out.println(i);
```

A) 7
B) 7.9
C) 8
D) Compilation error

---

14. Which data type has the largest range?

A) int
B) float
C) double
D) byte

---

15. Type casting is mainly used to:

A) Increase execution speed
B) Reduce code length
C) Convert one data type to another
D) Avoid syntax errors

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Part B: Problem Statements (15 Problems)

1. Write a program to demonstrate implicit type casting from int to double.

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2. Write a program to convert a double value into int using explicit casting and display both values.

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3. Take an integer value and store it into a float variable using implicit casting. Print the result.

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4. Write a program that shows data loss during explicit type casting (double to int).

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5. Convert a char value into its ASCII value using type casting.

---

6. Write a program where division of two integers gives incorrect output. Then fix it using type casting.

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7. Demonstrate narrowing conversion from int to byte and print the result.

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8. Write a program to convert float to int and explain the output using comments.

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9. Take user input as double and convert it into int. Display both values.

---

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10. Write a program that adds an int and a double and stores the result in a double variable.

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11. Write a program to show implicit casting in expressions (int + double).

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12. Convert a large int value into byte and observe the output.

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13. Write a program that demonstrates why explicit casting is mandatory in narrowing conversion.

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14. Create a program that converts marks (double) into integer percentage using type casting.

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15. Write a Java program that explains (using comments) the difference between implicit and explicit type casting with examples.
