PBC

Samsat

(2.5 years)

↳ Atlassian

↳ Amazon

↳ Teaching offline/online

4 years

↳ 1.5 years with ApNa

Variables

→ those who vary
↳ change.

let x = 5;

x = 10

x = 15;

x = 4

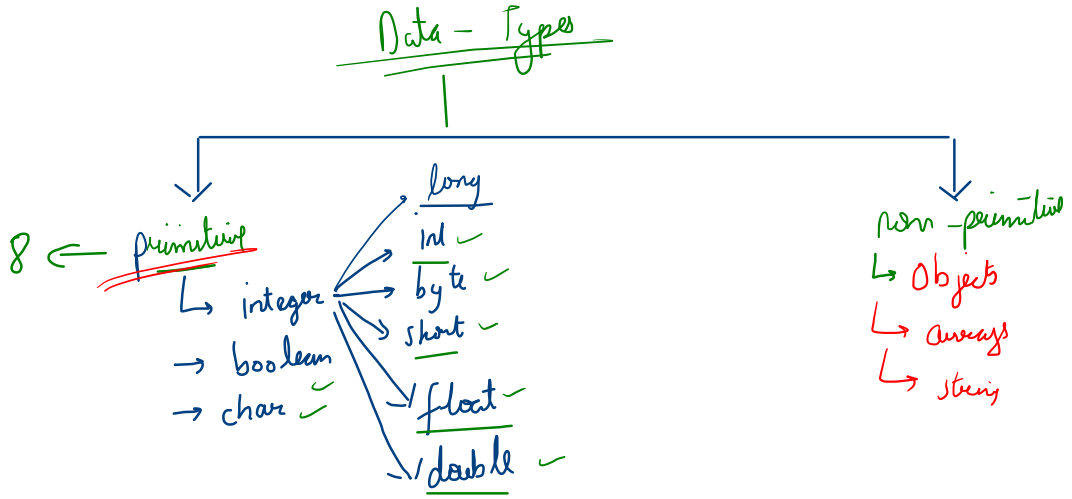
let y = x² + 2x;

y = 24

x = 2

y = 8

Data-types



⇒ How to define a data (variable)

integer

data_type variable_name = value;

int x = 23;

int y = 100;

z = 1000000000

10^9

long z = 10000000000;

1 GB → 1024 mb

1 mb → 1024 kb

1 kb → 1024 byte

1 byte → 8 bits

32

1 H → 4 byte

8 → 1000 $2^3 \rightarrow 4$

4 → 100

2^2

4 → 1000 $2^4 \rightarrow 5$

32 bit

Question 1 : In a program, input 3 numbers : A, B and C. You have to output the average of these 3 numbers.

(Hint : Average of N numbers is sum of those numbers divided by N)

```
5       Scanner scn = new Scanner(System.in);
6
7       int A = scn.nextInt();
8       int B = scn.nextInt();
9       int C = scn.nextInt();
10
11      int average = (A+B+C)/3;
12
13      System.out.println("Average of 3 numbers is: " + average);
14  }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
samratbhardwaj@Samrats-MacBook-Pro CP % javac Main.java && java Main
5 10 6
Average of 3 numbers is: 7
```

Question 2: In a program, input the side of a square. You have to output the area of the square.

(Hint : area of a square is (side x side))

Question 3: Enter cost of 3 items from the user (using float data type) - a pencil, a pen and an eraser. You have to output the total cost of the items back to the user as their bill.
(Add on : You can also try adding 18% gst tax to the items in the bill as an advanced problem)

pencil

pen

eraser

total_cost = pencil + pen + eraser

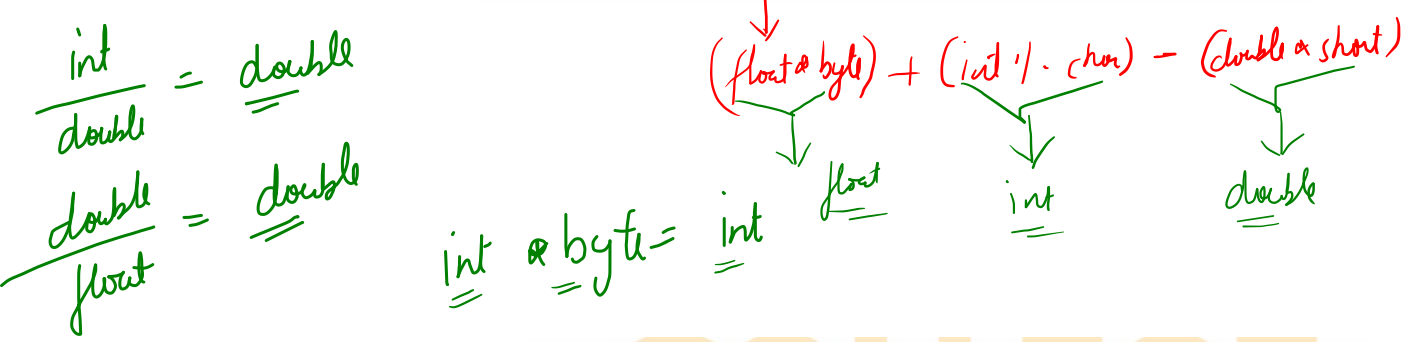
gst = (total_cost) × 0.18

total_bill = total_cost + gst.

Question 4: What will be the type of result in the following Java code?

```
byte b = 4;
char c = 'a';
short s = 512;
int i = 1000;
float f = 3.14f;
double d = 99.9954;

double result = (f * b) + (i % c) - (d * s);
```



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```

(Hint : Look at the largest data type among these)

Question 5: (Advanced) Will the following statement give any error in Java?

int $ = 24;

float x5 = 12.34f.

12.345078210 —

double xy = 12.34

byte → $(-2^8 \rightarrow 2^8 - 1)$

short → $(-2^{16} \rightarrow 2^{16} - 1)$

int → $(-2^{32} \rightarrow 2^{31} - 1)$ (10^8)

long → $(-2^{64} \rightarrow 2^{64} - 1)$

float → 32 bit

double → 64 bits

Conditionals

=> logical statements → result will always be true / false

int a = 5 ;
int b = 8 ;

a < b

a != b

a > b

a == b

true

a <= b

a >= b

Syntax

true

false

int a=10;

```
if ( a<b ) {
// work
}
```

```
{
    x=10
    y=20                    z=11
    if ( x>y )              10>20
    {
        z++;
    }
    print(z);
}
```

if-else

a = 100 b = 20

```
if ( a<b ) {
    // work1
}
else {
    // work2
}
```

100 < 20

Question 1 : Write a Java program to get a number from the user and print whether it is positive or negative.

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);

    int num = scn.nextInt();

    if(num > 0){
        System.out.println("This is a positive number");
    } else {
        System.out.println("This is a negative number");
    }
}
```

if - else if -

```
if (num > 0) {
    // work 1
} else if (num == 0) {
    // work 2
} else {
    // work 3
}
```

```
if ( ) {
} else if ( ) {
} else if ( ) {
} else if ( ) {
} else {
```

num = 25 456

This is a +ive number.
456

```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);

    int num = scn.nextInt();

    if(num > 0){
        System.out.println("This is a positive number");
        num = 456;
    } else if(num == 0){
        System.out.println("This is neither positive nor negative");
        num = 567;
    } else {
        System.out.println("This is a negative number");
        num = 876;
    }
    System.out.println(num);
}
```

Question 2 : Finish the following code so that it prints You have a fever if your temperature is above 100 and otherwise prints You don't have a fever.

```
public class Solution {

   public static void main(String[] args) {

       double temp = 103.5;

   }

}
```

Question 3 : Write a Java program to input week number(1-7) and print day of week name

week Number

1 → "Monday"

2 → "Tuesday"

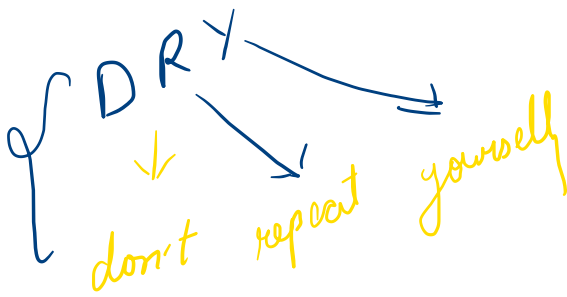
3 →

4

5 → "Friday"

6 → Sat

1 → "Sunday"



day

```java
int day = scn.nextInt();

if(day == 1){
    System.out.println("Monday");
} else if(day == 2){
    System.out.println("Tuesday");
} else if(day == 3){
    System.out.println("Wednesday");
}else if(day == 4){
    System.out.println("Thursday");
}else if(day == 5){
    System.out.println("Fridayyy!!!!");
}else if(day == 6){
    System.out.println("Saturday");
} else {
    System.out.println("Sunday");
}
```

switch (day) {

case 1:
print (Monday);
break;

case 2:
print (tuesday);
break;

case 3:
print (wednesday)
break;

default:
print ("None of these");
break;

}

Ternary Operator

int x = statement ? value1 : value2

statement == true
x = value1

statement == false
x = value2

x = false

Question 4 : What will be the value of x & y in the following program:

```
public class Solution {
 public static void main(String args[]) {
   int a = 63, b = 36;
   boolean x = (a < b ) ? true : false;
   int y= (a > b ) ? a : b;
 }
}
```

a = 63 b = 36

boolean x = (63 < 36) ? true : false

y = (63 > 36) ? 63 : 36

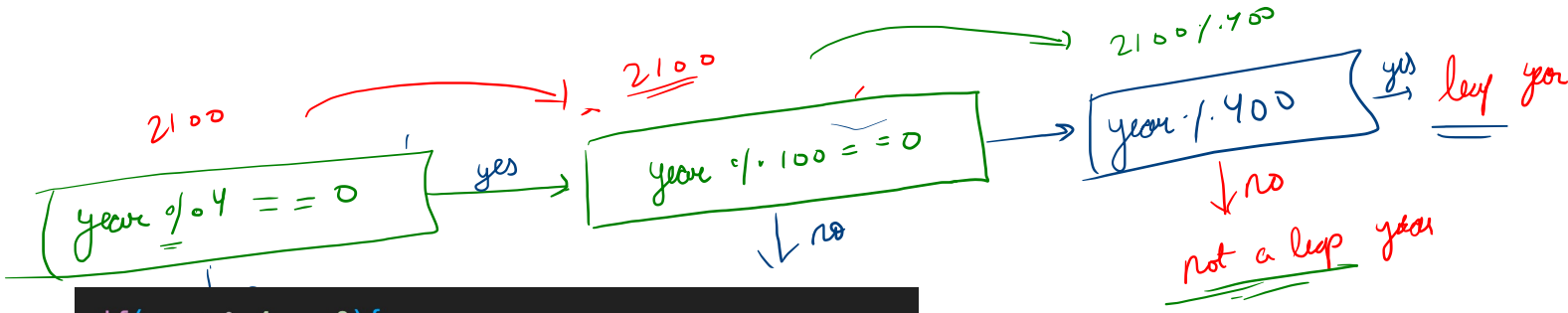
63

leap year

int a = 10;

100 ✗
200 ✗
300 ✗
400 ✓

2100 ✗
2200 ✗
2300 ✗
2400 ✓




```java
if(year % 4 == 0){
    if(year % 100 == 0){
        if(year%400 == 0){
            System.out.println("Leap year");
        } else {
            System.out.println("Not a leap year");
        }
    } else {
        System.out.println("Leap year");
    }
} else {
    System.out.println("Not a leap year");
}
```

```java
if(year % 4 == 0){
    if(year % 100 == 0){
        if(year%400 == 0){
            System.out.println("Leap year");
        } else {
            System.out.println("Not a leap year");
        }
    } else {
        System.out.println("Leap year");
    }
} else {
    System.out.println("Not a leap year");
}
```

year % 400 == 0

2400

2300

2200

2100

1900

1800

1700

1600

4 × 100

```java
import java.util.Scanner;

public interface leap {
    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int y = scn.nextInt();

        if(y%4==0 && y%400 == 0 || y%100 != 0){
            System.out.println("leap year");
        } else {
            System.out.println("not leap year");
        }

    }
}
```