Java mosh tutorial

#1 Print(for printing)

package com.company;  
  
public class Main {  
  
 public static void main(String[] args) {  
 System.*out*.println("Hello world");  
  
 }  
}

#2 variables(use to temporarily store data)

//#2 vrailbles  
 //int age =30;  
 //int temperature=20;  
 //age =35;  
 //int myAge = 40;  
 //int herAge = myAge;  
 //System.out.println(herAge);  
 //System.out.println(age);  
  
 }  
}

#3 primitive type ( for sorting simple values)

//#4 primitive type  
//byte age = 30;  
//long viewsCount = 3\_123\_456\_789L;  
//float price = 10.99F;  
//char letter = 'A';  
//boolean isEligible = false;

#4 reference type(for sorting complex values)

//#4 reference Types  
//byte age = 30;//primtive type  
//Date now = new Date();//reference type  
//System.out.println(now);

#5 primitive vs refrence(primive stores values but reference store the address )

//primitive  
//byte x = 1;  
//byte y = x;  
//x =2;  
//System.out.println(y);  
// reference  
//Point point1 = new Point(1,2);// dont type x , y it is atomatically generated  
//Point point2 = point1;  
//point1.x = 2;  
//System.out.println(point2);

# 6 strings (In java strings are immutable)(they are reference type)

//String message = "Hello world";  
//String messages = " Hello world" + "!!";  
//System.out.println(messages.endsWith("!!"));  
//System.out.println(messages.startsWith("!!"));  
//System.out.println(messages.length());  
//System.out.println(messages.indexOf("H"));  
//System.out.println(messages.indexOf("e"));  
//System.out.println(messages.indexOf("sky"));  
//System.out.println(messages.replace("!","\*"));  
//System.out.println(messages.toLowerCase());  
//System.out.println(messages.toUpperCase());  
//System.out.println(messages.trim());// to remove useless spaces  
//System.out.println(messages);  
//System.out.println(message);

#7 ESCAPE SEQUENCE

String message = "Hello \"world\""; //use \ for ""  
String message1 = "c:\\windows\\..."; // use extra \ for adding \  
String message2 = "c:\nwindows\t..."; // use \n for next line , use \t for adding a tab  
System.*out*.println(message);  
System.*out*.println(message1);  
System.*out*.println(message2);

#8 arrays (use to store list of items)

//int[] numbers = new int[5];  
//numbers[0] = 1;  
//numbers[1] = 2;  
//numbers[2] = 3;  
//numbers[3] = 4;  
//System.out.println(Arrays.toString(numbers));

//int[] numbers2 ={3,2,1,4,5};  
//System.out.println(numbers2.length);  
//System.out.println(Arrays.toString(numbers2));  
//Arrays.sort(numbers2);  
//System.out.println(Arrays.toString(numbers2));

#9 mutidementional arrays

int[][] numbers = new int[2][5];  
numbers[0][0] = 1;  
System.*out*.println(Arrays.*deepToString*(numbers));  
  
 //OR  
  
int[][] numbers2 = { {1,2,3},{1,4,5} };  
System.*out*.println(Arrays.*deepToString*(numbers2));

#10 constants (for variables whose value do not need to be changed)

final float pi = 3.14F;  
System.*out*.println(pi);

#11 Arthematic expressions

int result = 10 + 3;  
System.*out*.println(result);  
int result1 = 10 - 3;  
System.*out*.println(result1);  
int result2 = 10 \* 3;  
System.*out*.println(result2);  
int result3 = 10 / 3;  
System.*out*.println(result3);//result is whole number  
double result4 = (double)10 / (double) 3;// for geting decimals  
System.*out*.println(result4);  
  
int x = 1;  
x++;// or ++x  
System.*out*.println(x);  
  
int b = 1;  
int a = b++;  
System.*out*.println(a);  
  
int c = 1;  
int d = ++c;  
System.*out*.println(d);  
  
int x1 = 1;  
x1 = x1 + 2; // OR x +=2 (work with - , \* ,/)  
System.*out*.println(x1);

## 12 order of operating

// int x= 10+(3\*4)-2;  
// System.out.println(x);

#13 Casting

// implicit  
// short x = 1;  
// int y = x + 2;  
// System.out.println(y);//implicit casting , automacaly change convert the value into data type that is bigger,byte >short>int>long >float >double  
// double x1 = 1.1;  
// double y1 = x1 +2;  
// System.out.println(y1);  
// //explicit  
// double x2 = 1.1;  
// int y2 = (int)x2 + 2;// explicit casting we have to convert it no automatic convertion  
// System.out.println(y2);  
//  
// // for converstion of stirng to numbers  
// String x3 = "1";  
// int y3 = Integer.parseInt(x3) + 2;  
// System.out.println(y3);  
// String x4 = "1.1";  
// double y4 = Double.parseDouble(x4) + 2;  
// System.out.println(y4);  
// // for short use Short.parseShort()  
// // for float use float.parseFloat()

# 14 Math class

int result = Math.*round*(1.1F);  
System.*out*.println(result);  
  
int result1 = (int)Math.*ceil*(1.1F);//smalles integer which is greater than or equal to the no  
System.*out*.println(result1);  
  
int result2 = (int)Math.*floor*(1.1F);// largest interger which is that is smaller or euqal to the no  
System.*out*.println(result2);  
  
int result3 = Math.*max*(1,2);//give greater no  
System.*out*.println(result3);  
  
int result4 = Math.*min*(1,2);//give smaller no  
System.*out*.println(result4);  
  
double result5 = Math.*random*();//give random no btween zero and one  
System.*out*.println(result5);  
  
double result6 = Math.*random*() \* 13;//give random no btween zero and any other number (multiply that number)  
System.*out*.println(result6);  
  
int result7 = (int)Math.*round*(Math.*random*()\*100);  
System.*out*.println(result7);  
  
int result8 = (int)(Math.*random*()\*100);  
System.*out*.println(result8);

#14 formating numbers

// NumberFormat currency = NumberFormat.getCurrencyInstance();  
// String result = currency.format(1234567.891);  
// System.out.println(result);  
//  
// NumberFormat percent = NumberFormat.getPercentInstance();  
// String result2 = percent.format(0.1);  
// System.out.println(result2);  
// //OR  
// String result3 = NumberFormat.getPercentInstance().format(0.1);  
// System.out.println(result3);

#15 Reading input

Scanner scanner = new Scanner(System.*in*);  
System.*out*.print("Age: ");  
byte age = scanner.nextByte();  
System.*out*.println("Your are " + age);  
  
Scanner scanner1 = new Scanner(System.*in*);  
System.*out*.print("Type your name: ");  
String Name = scanner1.nextLine().trim();//use trim method to remove useless spaces  
System.*out*.println("Your are " + Name);  
System.*out*.println("Your are "+Name+ " and you are " + age + " years old ");

# 16 make a mortage calculator

final long months = 12L;  
final long percnet = 100L;  
Scanner claculation = new Scanner(System.*in*);  
  
System.*out*.print("Prinipal: ");  
int principle = claculation.nextInt();  
  
System.*out*.print("AnualInterst: ");  
double anualInterst = claculation.nextDouble();  
  
System.*out*.print("years: ");  
byte years = claculation.nextByte();  
  
double r =(double)((anualInterst/months)/percnet);  
int n = (int)((years\*months));  
double a =Math.*pow*(r+1,n);  
double value = principle\*((r\*a)/(a-1));  
  
NumberFormat morgage = NumberFormat.*getCurrencyInstance*();  
String mortgageValue = morgage.format(value);  
  
System.*out*.println("Mortage:" +mortgageValue);

# 17 Coparison operator

// // 17 Comparson operator ( for comparing values)  
//  
// int x = 1;  
// int y = 2;  
// System.out.println(x==y);//equal or not  
// System.out.println(x!=y);// not equal or not  
// System.out.println(x>y);  
// System.out.println(x>=y);  
// System.out.println(x<y);  
// System.out.println(x<=y);

#18 logical operator

// 18 Logical operator  
  
int temperature = 22;  
boolean isWarm = temperature > 20 && temperature < 30;// if both are correct  
System.*out*.println(isWarm);  
  
boolean hasHighIncome = false;  
boolean hasGoodCredit = true;  
boolean isEligibel = hasHighIncome || hasHighIncome;  
System.*out*.println(isEligibel);  
  
boolean hasaHighIncome = true;  
boolean hasaGoodCredit = true;  
boolean hasaCriminalRecord = false;  
boolean isElgibel = hasaHighIncome || hasaHighIncome && ! hasaCriminalRecord;  
System.*out*.println(isElgibel);

# 19 if statement

// 19 If statements  
int temp = 1;  
if (temp > 30) {// add {} if more than one function  
 System.*out*.println("It's hot day");  
 System.*out*.println("Drink water");  
}  
else if (temp > 20 && temp <=30)  
 System.*out*.println("Beautiful day");  
else  
 System.*out*.println("Cold day");

#20 simplifing if statement

// 20 simplifing if statement  
  
int income = 120\_000;  
boolean hasHighIncome;  
if (income > 100\_000)  
 hasHighIncome = true;  
else  
 hasHighIncome = true;  
  
// better code  
  
int income = 120\_000;  
boolean hasHighIncome = false;  
if (income > 100\_000)  
 hasHighIncome = true;  
  
  
// more better code  
  
  
int income = 120\_000;  
boolean hasHighIncome = (income > 100\_000);//() not required

# 21 the ternary operator

// 21 The ternary operator  
// int income = 120\_000;  
// String className;  
// if (income > 100\_000)  
// className = "First";  
// else  
// className = "Economy";  
  
 // OR better code  
//  
// int income = 120\_000 ;  
// String className = income > 100\_000 ? "First" :"Econmy";  
// System.out.println(className);

# 22 Switching operator

// using if statement  
String role = "admin";  
if (role == "admin")  
 System.*out*.println("You are an admin");  
else if (role == "moderator")  
 System.*out*.println("you are are a moderator");  
else  
 System.*out*.println("you are a guest");  
  
// using switch statement  
  
String roles = "moderator";  
switch (roles) {  
 case "admin":  
 System.*out*.println("You are admin");  
 break;  
 case "moderator":  
 System.*out*.println("you are are a moderator");  
 break;  
 default:  
 System.*out*.println("you are a guest");  
  
}  
int number = 3;  
switch (number) {  
 case 1:  
 System.*out*.println("You are admin");  
 break;  
 case 2:  
 System.*out*.println("you are are a moderator");  
 break;  
 default:  
 System.*out*.println("you are a guest");

#23 fizz buzz exercise

// With if statement(better code)  
  
Scanner number = new Scanner(System.*in*);  
System.*out*.print("Number:");  
int value = number.nextInt();  
if (value % 5 == 0 && value % 3 == 0) // % gives reminder of the number  
 System.*out*.println("fizz buzz");  
else if (value % 5 == 0)  
 System.*out*.println("fizz");  
else if (value % 3 == 0)  
 System.*out*.println("buzz");  
else  
 System.*out*.println(value);  
  
// With switch statement  
  
Scanner numbers = new Scanner(System.*in*);  
System.*out*.print("Number:");  
int values = number.nextInt();  
String theValue = "not divsible by 5 and 3";  
if (value % 5 == 0 && value % 3 == 0)  
 theValue = "divisible by 5 and 3";  
else if (value % 5 == 0)  
 theValue = "divisible by 5";  
else if (value %3 == 0)  
 theValue = "divisible by 3";  
  
switch (theValue){  
 case "divisible by 5 and 3":  
 System.*out*.println("fizz buzz");  
 break;  
 case "divisible by 5":  
 System.*out*.println("fizz");  
 break;  
 case "divisible by 3":  
 System.*out*.println("buzz");  
 break;  
 default:  
 System.*out*.println(values);  
}

#24 for loops

// for(int i = 0; i < 5; i++)  
// System.out.println("Hello world "+ i );  
// for(int i = 5; i > 0; i--)  
// System.out.println("Hello world "+ i );

#25 while loops

int i = 5;  
while(i>0){  
 System.out.println("Hello world " + i);  
 i--;  
}  
  
String input = "";  
Scanner scanner = new Scanner(System.in);  
while (!input.equals("quit")){  
 System.out.print("Input: ");  
 input = scanner.next().toLowerCase();  
 System.out.println(input);  
}

int i = 5;  
while(i>0){  
 System.out.println("Hello world " + i);  
 i--;  
}  
  
String input = "";  
Scanner scanner = new Scanner(System.in);  
while (!input.equals("quit")){  
 System.out.print("Input: ");  
 input = scanner.next().toLowerCase();  
 System.out.println(input);  
}

#26 better mortage calculator

#26 do while loops

String input ="";  
Scanner scanner = new Scanner(System.*in*);  
do {  
 System.*out*.print("Input: ");  
 input = scanner.next().toLowerCase();  
 System.*out*.println(input);  
  
}while (!input.equals("quit"));

#27 Break and continue

String input ="";  
Scanner scanner = new Scanner(System.*in*);  
while (true) {  
 System.*out*.print("Input: ");  
 input = scanner.next().toLowerCase();  
 if (input.equals("pass"))  
 continue;  
 if (input.equals("quit"))  
 break;  
 System.*out*.println(input);  
}

#28 for each loops

String[] fruits = {"Apple","Mango","Orange"};  
  
for (int i = 0; i <fruits.length; i++)  
System.*out*.println(fruits[i]);  
  
  
//or  
  
for (String fruit : fruits)  
 System.*out*.println(fruit);  
  
for (int i = fruits.length; i >0; i--)// foreach loops cannot digrimate item and does not have access to index of item  
 System.*out*.println(fruits[i]);

#29 better mortagate calculator

final byte months = 12;  
final byte percent = 100;  
  
Scanner scanner = new Scanner(System.*in*);  
int principal = 0;  
while(true){  
 System.*out*.print("Principal($1K - $1M): ");  
 principal = scanner.nextInt();  
 if (principal <= 1000 || principal >= 1\_000\_000 )// never type (1000 >=principal || principal >= 1\_000\_000 ) pricipal should be first  
 System.*out*.println("Enter a number value 1,000 and 1,000,000.");  
 else  
 break;  
  
}  
double annualInterestRate = 0;  
double monthlyInterestRate = 0;  
while(true){  
 System.*out*.print("Annual Interest Rate: ");  
 annualInterestRate = scanner.nextDouble();  
 if (annualInterestRate <=0 || annualInterestRate >=30)  
 System.*out*.println("Enter a value between 0 and 30.");  
 else{  
 monthlyInterestRate = (double) (annualInterestRate/ months/percent);  
 break;}  
  
 }  
byte period = 0;  
int periodInMonths = 0;  
while(true){  
 System.*out*.print("Period (Years): ");  
 period = scanner.nextByte();  
 if (period < 1 || period > 30)  
 System.*out*.println("Enter a value between 1 and 30.");  
 else{  
 periodInMonths = period \* months;  
 break;  
 }  
}  
  
double mortage = principal\*((monthlyInterestRate \* Math.*pow*(1 + monthlyInterestRate,periodInMonths))/(Math.*pow*(1 + monthlyInterestRate, periodInMonths) - 1));  
NumberFormat result = NumberFormat.*getCurrencyInstance*();  
String value = result.format(mortage);  
System.*out*.println("Mortage: "+ value);

#30 making a guessing game

int a = (int)(Math.*random*()\*100);  
int i =1;  
Scanner scanner = new Scanner(System.*in*);  
System.*out*.println("Find the secreat number between 0 to 100 \nYou have 5 Try");  
while(true){  
 System.*out*.print("Guess the number: ");  
 int b = scanner.nextByte();  
 if (b!=a && i < 5){  
 i = i + 1;  
 System.*out*.println("wroung answer");  
 }  
 else if (i>=5){  
 System.*out*.println("You lost ,No more try ");  
 break;}  
 else{  
 System.*out*.println("You won in just "+i+" Try," + b + " is the correct answer.");  
 break;  
 }  
}