SunBeam Institute of Information Technology

Core Java Modular Batch - Assignments

1.Accept a integer number and when the program is executed print the binary, octal and hexadecimal equivalent of the given number.
Sample Output:
java Test
Enter Number : 20
Given Number :20
Binary equivalent :10100
Octal equivalent :24
Hexadecimal equivalent :14

Hint : toBinaryString() , toOctalString(), toHexString()

2. Accept 2 double values from User (using Scanner). Check data type. If arguments are not doubles, supply suitable error message & terminate. If numbers are double values, print its average.

3.Create a class called Employee that includes three instance variables—a first name (type String), a last name (type String) and a monthly salary (double). Provide a constructor that initializes the three instance variables. Provide a set and a get method for each instance variable. If the monthly salary is not positive, do not set its value. Write a test application named EmployeeTest that demonstrates class Employee's capabilities. Create two Employee objects and display each object's yearly salary. Then give each Employee a 10% raise and display each Employee's yearly salary again.

4. Develop a Java application that determines whether any of several department-store customers has exceeded the credit limit on a charge account.
For each customer,the following facts are available:
a) account number
b) balance at the beginning of the month
c) total of all items charged by the customer this month
d) total of all credits applied to the customer's account this month
e) allowed credit limit.
The program should input all these facts as integers, calculate the new balance (= beginning balance+ charges – credits), display the new balance and determine whether the new balance exceeds the customer's credit limit. For those customers whose

credit limit is exceeded, the program should display
the message "Credit limit exceeded".

5. Declare two Arrays of type String. Find the duplicate values of an array of string values. (Hint: use equals())

6. Write a java program to reverse a String

7. Write a java code to check string is palindrome.

8. A company pays its employees on a weekly basis. The
employees are of four types:
Salaried employees are paid a fixed weekly salary regardless of the number of hours worked, hourly employees are paid by the hour and receive overtime pay (i.e., 1.5 times their hourly salary rate) for all hours worked in excess of 40 hours, commission employees are paid a percentage of their sales and base-salaried commission employees receive a base salary plus a percentage of their sales. For the current pay period, the company has decided to reward salaried- commission employees by adding 10% to their base salaries. The company wants to write an application that performs its payroll calculations polymorphically.

	earnings	toString
Employee	abstract	*firstName lastName* social security number: *SSN*
Salaried-Employee	weeklySalary	salaried employee: *firstName lastName* social security number: *SSN* weekly salary: *weeklySalary*

Hourly-Employee	if (hours <= 40)
	  wage * hours
	else if (hours > 40)
	{
	  40 * wage +
	  (hours - 40) *
	  wage * 1.5
	}
		hourly employee: *firstName lastName*
		social security number: *SSN*
		hourly wage: *wage*; hours worked: *hours*

Commission-Employee	commissionRate * grossSales	commission employee: *firstName lastName* social security number: *SSN* gross sales: *grossSales*; commission rate: *commissionRate*
BasePlus-Commission-Employee	(commissionRate * grossSales) + baseSalary	base salaried commission employee: *firstName lastName* social security number: *SSN* gross sales: *grossSales*; commission rate: *commissionRate*; base salary: *baseSalary*

9. Define a new exception, called ExceptionLineTooLong, that prints out the error message "The strings is too long". Write a program that reads a String from user and calculates its length. and throws an exception of type ExceptionLineTooLong in the case where a string of length is more than 80 characters.

10. Write a Java program to create a new array list, add some colors (string) and print out the collection as sorted list.

11. Write a program to create various Lists using Collection Framework.
Define a method to Find max number from ANY List of any numbers.
Hint: compareTo()

12. Write a Java program to create a new tree set, add some colors (string) and print out the tree set

13. Write a Java program to store text file content line by line into an array

14. Create multi threaded java application --- having 3 threads
main , even , odd.

Create EvenPrinterTask & OddPrinterTask
Accept from user (in main thread)-- start & end values.
Pass these values from main to child threads.
Even no printer thread should print even nos within range, with small delay (sleep)
Odd no printer thread should print odd nos within range , with small delay (sleep)
Ensure no orphans.
Solve above using implements Runnable scenario.

15. Write a program to maintain a bank account of customers. Write methods deposit some amount to an account and withdraw some amount from an account.
Now, for a given account, if two or more transactions come simultaneously then only one transaction should be allowed at a time instead of simultaneous transaction processing so that data inconsistency will never occur.
Hint: Use Synchronized keyword