Problem 1

Student1.java

public class Student1{  
 public int roll,age;  
 public String name,course;  
  
 public Student1(){ //default constructor  
  
 }  
 public Student1(int rno,String n,int ag,String c){ //parameterised constructor  
 roll =rno;  
 name=n;  
 age=ag;  
 course=c;  
 }  
public String toString(){  
 return roll+" "+name+" "+age+" "+course ;  
}  
}

StudentManagement.java

package Task\_4;  
import java.lang.Exception;  
  
  
import java.util.Scanner;  
public class StudentManagement1{  
 public static int *rollno*,*age*;  
 public static String *name*,*course*;  
 public void info(int ro, String n, int a, String cour) { // mehtod to send the user input to Student class  
 *rollno* = ro;  
 *name* = n;  
 *age* = a;  
 *course* = cour;  
 Student1 ss=new Student1(*rollno*,*name*,*age*,*course*);  
 System.*out*.println(ss.toString());  
 }  
 public static void main(String[] args) throws AgeException { // age exception is user defined exception  
 Scanner s=new Scanner(System.*in*);  
 StudentManagement1 s1=new StudentManagement1();  
 System.*out*.println("enter the student details");  
 System.*out*.println("enter rollno name age course");  
 *rollno*=s.nextInt();  
  
 try { // try catch block to check is name contains any special character  
 *name* = s.next();  
 if(*name*.contains("$")|| *name*.contains("@")|| *name*.contains("\_")||*name*.contains("%")|| *name*.contains("!")|| *name*.contains("&")){  
 throw new Exception("Name no valid exception");  
 }  
 } catch (Exception e) {  
 System.*out*.println(e.getMessage());  
 }  
 try { // try catch block to check the age range not between 15 to 21  
 *age* = s.nextInt();  
 if((*age*>=15 && *age*<=21)){  
 throw new AgeException("Age not with in range exception");  
 }  
 }catch (Exception e){  
 System.*out*.println(e.getMessage());  
 }  
 *course*=s.next();  
 s1.info(*rollno*,*name*,*age*,*course*);  
  
 }  
}

AgeException.java

public class AgeException extends Exception{  
 public AgeException(String message){  
 super(message);  
 }

output:

Age error:

enter rollno name age course

1

Abdul

17

Age not with in range exception

Name with special character:

enter rollno name age course

1

G^v!

Name no valid exception

Problem 2:

Voter.java

public class Voter {  
 public static int *voterid*;  
 public static String *votername*;  
 public static int *voterage*;  
  
 public Voter(){ //deafult constructor  
  
 }  
 public Voter(int vid,String name,int age){ // parameterised constructor  
 *voterid*=vid;  
 *votername*=name;  
 *voterage* =age;  
 //try and catch used here to check age  
 try{  
 if(*voterage*<18){  
 throw new Exception("invalid age for voter");  
 }  
 } catch (Exception e) {  
 System.*out*.println(e.getMessage());  
 }  
 }  
  
 public String toString(){  
 return "ID: "+*voterid*+" Name: "+*votername*+" Age:"+*voterage*;  
 }  
}

TestVoter.java

import java.util.Scanner;  
public class TestVoter {  
 public static void main(String[] args) {  
 Scanner ss=new Scanner(System.*in*);  
 int vid,age;  
 String name;  
 System.*out*.println("enter the voter details");  
 System.*out*.println("enter the voter id: name: age:");  
 vid=ss.nextInt();  
 name=ss.next();  
 age=ss.nextInt();  
 Voter v=new Voter(vid,name,age);  
 System.*out*.println(v.toString());  
 }  
}

output:

enter the voter details

enter the voter id: name: age:

12323

Guvi

17

invalid age for voter

ID: 12323 Name: Guvi Age:17

Problem 3:

IndexException.java

import java.util.Scanner;  
public class IndexException {  
 public static void main(String[] args) throws Exception {  
 Scanner s=new Scanner(System.*in*);  
 String[] weekdays={"sunday","monday","tuesday","wednesday","thursday","friday","saturday"};  
 System.*out*.println("enter the day to find position");  
 int value=s.nextInt();  
 try{  
 System.*out*.println(weekdays[value]);  
  
 }catch(Exception e){  
 throw new Exception("please enter the numeric value ranges 0 to 6");  
  
 }  
 }  
}

ouput:

correct index value

enter the day to find position

5

Friday

Not Index value

enter the day to find position

8

Exception in thread "main" java.lang.Exception: please enter the numeric value ranges 0 to 6

at Task\_4.IndexException.main(IndexException.java:15)

Problem 4:

import java.util.Stack;  
import java.util.Scanner;  
public class Stacksolution {  
 public static void main(String[] args) {  
 Stack<Integer> value = new Stack();  
 Scanner s=new Scanner(System.*in*);  
 int i;  
 // push method to add elements to stack  
 value.push(i=s.nextInt());  
 value.push(i=s.nextInt());  
 value.push(i=s.nextInt());  
 value.push(i=s.nextInt());  
 value.push(i=s.nextInt());  
 System.*out*.println("size of the stack");  
 System.*out*.println(value.size());// gives size after adding the elements  
 System.*out*.println("First element in stack");  
 System.*out*.println(value.peek());// gives first element in stack  
 System.*out*.println("deleting the first element ");  
 System.*out*.println(value.pop());// delete the first element in stack  
 System.*out*.println(value.peek());// after deleteing the element next in stack will be first  
 System.*out*.println("size of the stack");  
 System.*out*.println(value.size());  
 if(!value.empty()){ // if loop to check stack is empty or not  
 System.*out*.println("stack is filled");  
 }else {  
 System.*out*.println("stack is empty");  
 }  
 }  
}

output

34

45

7564

3454

243

size of the stack

5

First element in stack

243

deleting the first element

243

3454

size of the stack

4

stack is filled

problem 5:

import java.util.LinkedHashMap;  
import java.util.Map;  
import java.util.Scanner;  
// Map is used to get key and value here  
public class Grade {  
 public static void main(String[] args) {  
 Map<String,Integer> student=new LinkedHashMap<>();  
 //System.out.println("enter the details of student and grade");  
 Scanner s=new Scanner(System.*in*);  
 String na="";  
 int i=0;  
 System.*out*.println("enter the name and grade");  
 student.put(na=s.next(),i=s.nextInt());// put method to add elements  
 student.put(na=s.next(),i=s.nextInt());  
 student.put(na=s.next(),i=s.nextInt());  
 student.put(na=s.next(),i=s.nextInt());  
 System.*out*.println(student.keySet()); // will display all key entered  
 System.*out*.println(student.values()); // will display all value entered  
 System.*out*.println("enter the name to be deleted");  
 student.remove(na=s.next()); // will remove the element based on key  
 System.*out*.println(student.keySet());  
 System.*out*.println(student.values());  
 System.*out*.println("enter any name to get grade");  
 System.*out*.println(student.get(na=s.next())); // will display value based on key  
 }  
}

output

enter the name and grade

guvi 34

kadhar 56

java 90

c++ 88

[guvi, kadhar, java, c++]

[34, 56, 90, 88]

enter the name to be deleted

kadhar

[guvi, java, c++]

[34, 90, 88]

enter any name to get grade

guvi

34