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| **Experiment No.** | **10** |

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| **AIM:** | To make packages in java, implement them in a program and observe different types of Access Modifiers in java. |
| **Program 1** | |
| **PROBLEM STATEMENT:** | Create a package with class Reverse\_String. Write a function called ReversIt() that reverses a string. It swaps the first and last characters, then the second and next-to-last characters, and so on. The string should be passed to reversit() as an argument. Write a program to exercise reversit(). Class Check  get a string from the user, call reversit(), and print out the result. Use an input method that allows embedded blanks. Test the program with Napoleon’s famous phrase, “Able was I ere I saw Elba.” |
| **PROGRAM:** | **Package Code:**  package *mypackage*;  *public* *class* Reverse\_string {  *public* *static* String ReverseIt(String str) {          int len = str.length();          int l = len;          if(len%2!=0) {              len = len/2 + 1;          }          else {              len = len/2;          }          char[] str1 = str.toCharArray();          char temp;          for(int i=0;i<len;i++) {              temp = str1[i];              str1[i] = str1[l-i-1];              str1[l-i-1] = temp;          }          str = new String(str1);          return str;      }  }  **Program Code:**  import *java*.*util*.*\**;  import *mypackage*.*Reverse\_string*;  *public* *class* Check {  *public* *static* void main(String[] args) {          Scanner sc = new Scanner(System.*in*);          String str = new String();          System.*out*.println("Enter a String: ");          str = sc.nextLine();          System.*out*.println("The reversed string is: "+Reverse\_string.ReverseIt(str));          sc.close();      }  } |
| **RESULT:** | |
| **Program 2** | |
| **PROBLEM STATEMENT:** | A Package implements stack operations:   1. Push b. Pop   Write a user-defined exception to check whether the stack is full or empty. |
| **PROGRAM:** | **Package Code:**  package *mypack*;  *public* *class* Stack {      int[] stack;      int top;      int capacity;  *public* Stack(int size) {          stack = new int[size];          capacity = size;          top = -1;      }  *public* void push(int e) {          if(isFull()) {              System.*out*.println("Stack is full\nPush operation failed");          } else {              System.*out*.println("Pushing element: "+e);              stack[++top] = e;          }      }  *public* void pop() {          if(isEmpty()) {              System.*out*.println("Stack is empty\nPop operation failed");          } else {              System.*out*.println("Popping element: "+stack[top--]);          }      }  *public* int peek() {          if(!isEmpty()) {              return stack[top];          }          else {              System.*out*.println("Stack is empty\nPeek operation failed");              return -1;          }      }  *public* boolean isEmpty() {          return top == -1;      }  *public* boolean isFull() {          return top == capacity - 1;      }  *public* int size() {          return top+1;      }  }  **Program Code:**  import *java*.*util*.*Scanner*;  import *mypack*.*\**;  *public* *class* StackCheck {  *public* *static* void main(String[] args) {          Scanner sc = new Scanner(System.*in*);          System.*out*.println("Enter the size of the stack: ");          int size = sc.nextInt();          Stack s = new Stack(size);          int flag,choice;          while(true) {              System.*out*.println("Select 1 Operation:\n1. Push\t\t2. Pop\n3. Peek\t\t4. Size");              choice = sc.nextInt();              switch(choice) {                  case 1:                      System.*out*.println("Enter the element to be pushed: ");                      int e = sc.nextInt();                      s.push(e);                      break;                  case 2:                      s.pop();                      break;                  case 3:                      if(s.peek()!=-1) {                          System.*out*.println("The top element is: "+s.peek());                      }                      break;                  case 4:                      System.*out*.println("The size of the stack is: "+s.size());                      break;                  default:                      System.*out*.println("Invalid choice");                      break;              }              System.*out*.println("Do you want to continue?\n1. Yes\t2. No");              flag = sc.nextInt();              if(flag == 2) {                  break;              }          }      }  } |
| **RESULT:**  **Push & Pop:**  **Exception Test Cases:** | |
| **Program 3** | |
| **PROBLEM STATEMENT:** |  |
| **PROGRAM:** |  |
| **RESULT:** | |
| **Program 4** | |
| **PROBLEM STATEMENT:** |  |
| **PROGRAM:** |  |
| **RESULT:** | |
| **CONCLUSION:** | In this experiment, we learnt how to build our own package and use access modifiers to differentially access methods and classes outside the package. We also learnt how to implement a Stack in java using arrays with push & pop operations. |