

## ICS3U0 Selection

1. A movie ticket is \$9.95. The theatre charges a discounted admission rate for seniors (65+) and children 12 years and younger. Write a program that prompts for the age of a customer and outputs a message indicating whether a discount rate is applied or not. If the discount applies, calculate the discount at 20%. Output the final price.

### Sample Output

Enter the age of the moviegoer:

66

This moviegoer qualifies for a discount rate.

```
Scanner input = new Scanner(System.in);
    int age;
    double discount, price, total;
    price = 9.95;
    discount = 0.20;
    System.out.println("Enter the age of the moviegoer:");
    age = input.nextInt();
    if ((12 >= age) || (65 <= age)) {
        total = price - (price * discount);
        System.out.println("This moviegoer qualifies for a
discount rate.");
        System.out.println("The final price is $" +
Math.round(total * 100) / 100.0);
    }
    else {
        System.out.println("This moviegoer does not qualifies for
a discount rate.");
        System.out.println("The final price is $" + price);
    }
}
```

2. Using Java, create a variable called length and width. Write a program that prompts the user for the length and width of a rectangle. If the length and width are positive, calculate and output the area. Otherwise, output an error message.

### Sample Output

Enter the length of a rectangle:

45

Enter the width of a rectangle:

-35

Error: there cannot be a negative side length for a rectangle

```
Scanner input = new Scanner(System.in);
    double length, width, area;
    System.out.println("Enter the length of a rectangle:");
    length = input.nextDouble();
    System.out.println("Enter the width of a rectangle:");
    width = input.nextDouble();
    if ((length < 0) || (width < 0)) {
```

```

        System.out.println("Error: there cannot be a negative side
length for a rectangle");
    }
    else {
        area = (length*width);
        System.out.println("The area of the rectangle is " +
area);
    }
}

```

- Write a program that prompts for the mark of a student (out of 100). The program outputs the appropriate letter grade of the student. For example, if the marks is greater than 60 AND less than 69, the letter grade is a 'C'. Ensure that no marks greater than 100 or less than 0 are accepted.

Sample Output
Enter a mark out of 100: 64 The Letter for a 60 is a C.

```

Scanner input = new Scanner(System.in);
double mark;
System.out.println("Enter a mark out of 100:");
mark = input.nextDouble();
if ((mark>=90) && (mark<=100)) {
    System.out.println("The Letter for a " + mark + " is a
A");
}
else if ((mark>=80) && (mark<=89)) {
    System.out.println("The Letter for a " + mark + " is a
B");
}
else if ((mark>=70) && (mark<=79)) {
    System.out.println("The Letter for a " + mark + " is a
C");
}
else if ((mark>=60) && (mark<=69)) {
    System.out.println("The Letter for a " + mark + " is a
D");
}
else if ((mark>=0) && (mark<59)) {
    System.out.println ("The Letter for a " + mark + " is a F");
}
}

```

- Edit the question 3 so that an error message will be displayed if a negative or a mark greater than 100 is entered.

Sample Output
Enter a grade out of 100: 101 Error: 101 is not between 0 and 100

```

Scanner input = new Scanner(System.in);
double mark;

```

```

System.out.println("Enter a mark out of 100:");
mark = input.nextDouble();
if ((mark>=90) && (mark<=100)) {
    System.out.println("The Letter for a " + mark + " is a
A");
}
else if ((mark>=80) && (mark<=89)) {
    System.out.println("The Letter for a " + mark + " is a
B");
}
else if ((mark>=70) && (mark<=79)) {
    System.out.println("The Letter for a " + mark + " is a
C");
}
else if ((mark>=60) && (mark<=69)) {
    System.out.println("The Letter for a " + mark + " is a
D");
}
else if ((mark>=0) && (mark<59)) {
    System.out.println ("The Letter for a " + mark + " is a F");
}
else if ((mark<0) || (mark>100)){
    System.out.println("Error: " + mark + " is not between 0 and
100");
}

```

5. Write a program that prompts the user for a password and a ID number. The program will compare the entered ID Number and password to the constant stored password: "PASSWORD" and ID number: 55555. If they both match, the program will output the string – "password successful, access granted". Otherwise the program will output "Access denied" and a message indicating what did not match.

Sample Output
Enter ID: 555555
Enter password: smile
Access denied. Password incorrect.

```

Scanner input = new Scanner(System.in);
String ID, password;
System.out.println("Enter ID:");
ID = input.nextLine();
System.out.println("Enter password:");
password = input.nextLine();
if (ID.equals("555555") && password.equals("PASSWORD")) {
    System.out.println("password successful, access granted");
}
else {
    System.out.println("Access denied. Password incorrect.");
}

```