



Institiúid Teicneolaíochta Chorcaí
Cork Institute of Technology

Module: SOFT6017 – Problem Solving & Programming 2

Week 1: Lab 0: Revision of SOFT6018

Instructions:

1. Create a project called **Cruise** which will contain four source code files that answer each part of the lab , i.e. :
 - For part 1 create Cruise1.java
 - For part 2 create Cruise2.java
 - For part 3 create Cruise3.java
 - For part 4 create Cruise4.java
2. Add your **name** and **studentID** as a comment at the top of each class file.
3. Complete the **Wild Atlantic Cruise** application as outlined below.

Wild Atlantic Cruises

The Wild Atlantic Cruise Company takes bookings for cruises in the Atlantic Ocean off the coast of the West of Ireland. Passengers can book for one or more days on the cruise. They must give their name and surname when booking. They must specify the number of days that they intend to spend on the cruise ship. They must also specify the type of accommodation required. The accommodation may be one of the following

- Basic
- Standard
- Premium

The company has a simple pricing structure. The cost per day for passengers depends on the type of accommodation chosen as follows:

- Basic @ €200 Euros per day
- Standard @ €250 Euros per day
- Premium @ €350 Euros per day

Part 1 - Single Ticket Booking

Write a Java program that accepts a single booking for a passenger and displays the passenger's booking details. The booking details must include:

- the first initial of the passengers first name
- the passenger's surname
- the length of stay on the cruise
- the type of accommodation chosen
- the cost of the cruise

The following is a sample of what the application should look like when it's running:

```
--- Wild Atlantic Cruise Booking ---

Enter your first name: Ann
Enter your surname: Green
Enter the length of your stay in days: 2
Types of accommodation available:
1    Basic
2    Standard
3    Premium
Enter your choice now: 1

Wild Atlantic Cruise Booking Details
-----
Name  Surname  Days  Type    Cost
A.    Green    2     Basic   400.0
```

Part 2 - Multiple Booking System

Modify the program so that the application can accept a group booking, i.e. a booking that contains the details of one or more passengers. In such a scenario, the booking details displayed must show the booking details of all the passengers booked with this group and the total cost of the group booking. The following is a sample of what the application should look like when it's running - please note that the sample application asks the user if they would like to enter the booking details for another passenger after each booking entry but you may use **any method** you wish for multiple inputs.

```
--- Wild Atlantic Cruise Booking ---
```

```
Enter your first name: Ann
Enter your surname: Green
Enter the length of your stay in days: 2
Types of accommodation available:
1      Basic
2      Standard
3      Premium
Enter your choice now: 1
Would you like to enter the details for another passenger? (Y/N): y
```

```
Enter your first name: Peter
Enter your surname: Reid
Enter the length of your stay in days: 1
Types of accommodation available:
1      Basic
2      Standard
3      Premium
Enter your choice now: 2
Would you like to enter the details for another passenger? (Y/N): y
```

```
Enter your first name: Ken
Enter your surname: Pike
Enter the length of your stay in days: 3
Types of accommodation available:
1      Basic
2      Standard
3      Premium
Enter your choice now: 3
Would you like to enter the details for another passenger? (Y/N): n
```

```
Wild Atlantic Cruise Booking Details
```

```
-----
Name  Surname    Days  Type      Cost
A.    Green      2     Basic     400.0
P.    Reid       1     Standard  250.0
K.    Pike       3     Premium  1050.0
```

```
Total Cost(€): 1700.0
```

Part 3 - Group Discounts

Modify the program so that the application keeps track of the number of passengers included in the booking. Groups are given a 10 % discount if there are three or more people in the group.

The booking details displayed must be modified so that it now shows the total number of passengers in the group and the total price for the group before and, if relevant, after the discount is applied.

The following is a sample of what the displayed booking details should look like after the sample data provided in part 2 is entered:

```
Wild Atlantic Cruise Booking Details
-----

Booking Details for Group of 3

Name  Surname    Days  Type      Cost
A.    Green      2     Basic     400.0
P.    Reid       1     Standard  250.0
K.    Pike       3     Premium   1050.0

Total Cost(€): 1700.0
Total Cost After Discount (10.0%) (€): 1530.0
```

Part 4 – Input Validation

You have been asked to modify the code to carry out the following input validation

- Ensure the passenger's first name is at least one character long.
- Ensure the passenger's surname is at least one character long.
- Ensure that the number of days entered is an integer and greater than 0.
- Ensure the type of accommodation chosen is an integer in the range 1 to 3 inclusive.
- For Multiple Entries apply one of the following validation techniques:
 - a. If using the approach of asking the user if they would like to enter the booking details for another passenger after each booking entry in part 2, then ensure that the value entered by the user is Y or N regardless of case.
OR
 - b. If using the approach of asking the user the exact number of passengers in part 2, then validate that the number of passengers is an integer greater than 0.