

C3 Solutions

1. Distance_With_Errors Listing File

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Compiling: c:/docume~2/joeb/desktop/adatex~1/fk3-w95/distance_with_errors.adb (source file time stamp: 1998-09-13 23:11:36)

```
1. WITH Ada.Text_IO;
2. WITH Ada.Float_Text_IO;
3. PROCEDURE Distance_with_Errors IS
4. -----
5. --| Finds distance, given travel time and average speed
6. --| Author: Michael Eldman, The George Washington University
7. --| Last Modified: June 1998
8. -----
9.   HowLong : Natural;
10.  HowFast : Float;
11.  HowFar : Natural;
12.
13. BEGIN -- Distance_with_Errors
14.
15.  -- prompt user for hours and average speed
16.  Ada.Text_IO.Put
17.  (Item => "How long will you be driving (integer) ? ");
18.  Ada.Float_Text_IO.Get (Item => HowLong);
    |
    >>> invalid parameter list in call (use -gnatf for details)
19.  Ada.Text_IO.Put
20.  (Item => "At what speed (miles per hour, integer)?");
21.  Ada.Float_Text_IO.Get (Item => HowFast);
22.
23.  -- compute distance driven
24.  HowFast := HowLong * HowFar;
    |
    >>> expected type "Standard.Float"
    >>> found type "Standard.Integer"
25.
26.  -- display results
27.  Ada.Text_IO.Put (Item => "You will travel about ");
28.  Ada.Float_Text_IO.Put (Item => HowFar);
    |
    >>> invalid parameter list in call (use -gnatf for details)
    >>> possible missing instantiation of Text_IO.Integer_IO
29.  Ada.Text_IO.Put (Item => " miles");
30.  Ada.Text_IO.New_Line;
31.
32. END Distance_with_Errors;
33.
33 lines: 5 errors
```

2. Distance_With_Errors with bug fixes

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Compiling: c:/docume~2/joeb/desktop/adatex~1/fk3-w95/distance_with_errors.adb (source file time stamp: 2003-09-10 10:41:38)

```
1. WITH Ada.Text_IO;
2. with Ada.Float_Text_Io;
3. with Ada.Integer_Text_IO;
4. PROCEDURE Distance_with_Errors IS
5. -----
6. -- Finds distance, given travel time and average speed
7. --| Author: Michael eldman, The George Washington University
8. --| Last Modified: June 1998
9. -----
10. HowLong : Natural;
11. HowFast : Float;
12. HowFar : Natural;
13.
14. BEGIN -- Distance_with_Errors
15.
16. -- prompt user for hours and average speed
17. Ada.Text_IO.Put
18.   (Item => "How long will you be driving (integer) ? ");
19. Ada.Integer_Text_IO.Get (Item => HowLong);
20. Ada.Text_IO.Put
21.   (Item => "At what speed (miles per hour, integer)?");
22. Ada.Float_Text_IO.Get (Item => HowFast);
23.
24. -- compute distance driven
25. HowFar:= HowLong * Integer(HowFast);
26.
27. -- display results
28. Ada.Text_IO.Put (Item => "You will travel about ");
29. Ada.Integer_Text_IO.Put (Item => HowFar);
30. Ada.Text_IO.Put (Item => " miles");
31. Ada.Text_IO.New_Line;
32.
33. END Distance_with_Errors;
34.
```

34 lines: No errors

3. Write an algorithm to
 - a. Accept the weight of the user (in kilograms)
 - b. Compute the equivalent weight in pounds
 - c. Display “weight_in_kg” kg = “weight_in_pounds” lb

Where weight_in_kg is the entered value and weight_in_pounds is the computed value.

1. Prompt the user to enter his/her weight.
2. Read the user input.
3. Convert the weight from kilograms into pounds using the formula
1 Pound = 0.453592 kilograms

$$\text{Weight in pounds} = \text{Weight in Kilograms} / 0.453592$$

4. Display the output to the user in the weight_in_kg” kg = “weight_in_pounds” lb format.

4. Code listing of the implementation of the algorithm.

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Compiling: c:/docume~2/joeb/desktop/16070/concep~1/convert_weight.adb (source file time stamp: 2003-09-10 18:46:40)

```
1. -----
2. -- Program : To Convert the user weight in kilograms
3. --           into pounds.
4. -- Programmer : Joe B
5. -- Date Last Modified : 09/10/2003
6. -----
7.
8.
9. with Ada.Text_IO;
10. with Ada.Float_Text_IO;
11.
12. procedure Convert_Weight is
13.
14.   Weight_In_Kg, Weight_In_Lb : Float;
15.   -- set the conversion factor to convert between kilograms and pounds
16.   Conversion_Factor : constant Float := 0.453592;
17.
18. begin -- Convert_Weight
19.   -- get user input
20.   Ada.Text_IO.Put(Item => "Please Enter Your Weight in Kilograms ");
21.   Ada.Float_Text_IO.Get(Item => Weight_In_Kg);
22.   Ada.Text_IO.Skip_Line;
23.
24.   Ada.Text_IO.New_Line;
25.   -- perform the conversion
26.   Weight_in_lb := Weight_in_Kg / Conversion_Factor;
27.
28.   -- display the computed result to the user
29.   Ada.Float_Text_IO.Put(Item => Weight_In_Kg, Fore => 4, Aft => 3, Exp => 0);
30.   Ada.Text_IO.Put(Item => " kg = ");
31.
32.   Ada.Float_Text_IO.Put(Item => Weight_In_lb, Fore => 4, Aft => 3, Exp => 0);
33.   Ada.Text_IO.Put(Item => " lb");
34.
35. end Convert_Weight;
```

35 lines: No errors