



C# BASICS

Training Assignments

Document Code	25e-BM/HR/HDCV/FSOFT
Version	1.1
Effective Date	20/11/2012

RECORD OF CHANGES

No	Effective Date	Change Description	Reason	Reviewer	Approver
1.	01/Oct/2018	Create new	Draft		
2.	01/Jun/2019	Update template	Fsoft template	DieuNT1	

Contents

Day 5: Exception & File I/O	4
Objectives:	4
Prerequisites:	4
Technical Requirements:	4
Problem Requirements:	4
Estimated Time: 180 minutes.....	7
Mark Scale:	7



CODE:	NCTR.M.A05
TYPE:	MEDIUM
LOC:	190
DURATION:	180 MINUTES

Day 5: Exception & File I/O

Objectives:

- » Understand and practice with Exception and File I/O in C#.

Prerequisites:

- » Working environment: Visual Studio 2013 or higher.
- » Delivery: Source code packaged in a compress archive.

Technical Requirements:

Create a solution named **NCTR.M.A05**.

Within the solution, create a console project corresponding to the following exercise:

- **NCTR.M.A05**

Problem Requirements:

Develop a C# console application to manage a personal recipe collection. The application should allow users to add, view, search, edit, and import/export recipes in JSON and Excel formats.

Classes:

- **Recipe:**
 - **Properties:**
 - Id (int): Unique identifier for the recipe (required).
 - Name (string): Name of the recipe (required).
 - Description (string, optional): A brief description of the recipe.
 - Ingredients (List<string>, optional): List of ingredients required for the recipe.
 - Category (string, optional): Category of the recipe (e.g., Appetizer, Main Course, Dessert).
 - **Methods:**
 - ToString(): Returns a formatted string representation of the recipe details.
- **RecipeManager:**
 - **Properties:**
 - recipes (List<Recipe>): Internal collection to store recipe objects.
 - **Methods:**
 - AddRecipe(Recipe recipe): Adds a new recipe to the collection.
 - GetAllRecipes(): Returns a list of all recipes.
 - SearchRecipes(string keyword): Searches for recipes based on a keyword in the name, description, ingredients, or category.
 - ImportRecipes(string filePath): Imports recipes from a JSON or Excel file based on the file extension.
 - ExportRecipes(string fileType, string filePath): Exports recipes to a JSON or Excel file based on the chosen file type.

Function Requirements:

- **Add Recipe:**
 - Prompt the user to enter recipe details (name, description, ingredients, category).
 - Ensure the name is not empty.
 - Handle potential errors like invalid input formats.
- **View All Recipes:**
 - Display a list of all recipes with basic details (e.g., name, category).
- **Search Recipes:**
 - Allow users to search for recipes by entering a keyword.
 - Search recipe name, description, ingredients, and category.
 - Display matching recipes.
- **Edit Recipe:**
 - Allow users to search for a recipe by name.
 - Provide options to edit name, description, ingredients, and category.
 - Ensure the name remains non-empty after editing.
- **Import Recipes:**
 - Support importing recipes from JSON and Excel files.
 - Handle potential errors like file not found, invalid file format, or parsing errors.
- **Export Recipes:**
 - Allow users to export recipes to JSON or Excel format.
 - Include all recipe details in the exported file.

Business Rules:

- Each recipe must have a unique ID and a non-empty name.
- Ingredients and category are optional fields.
- Implement proper validation for user input to avoid data inconsistencies.

Hints:

- Use Newtonsoft.Json library for JSON serialization/deserialization.
- Use OfficeOpenXml (EPPlus) library (check licensing for non-commercial use) for working with Excel files.
- Consider using exception handling (try-catch blocks) to manage potential errors during file operations.
- Implement a user-friendly menu system for navigating application functionalities.

Screenshots:

- Add Recipe

```

===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
1
===== Add Recipe =====
Enter recipe id:
1
Enter recipe name:
Bun Bo Hue
Enter recipe description:
Bun Bo Hue
Enter recipe ingredients (separated by comma):
Bun,Bo,Xuong Heo
Enter recipe category:
Bun
===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
1
===== Add Recipe =====
Enter recipe id:
2
Enter recipe name:
Pho Nam Dinh
Enter recipe description:
Pho Nam Dinh
Enter recipe ingredients (separated by comma):
Pho,Xuong Heo,Gia Vi
Enter recipe category:
Pho

```

- View All Recipes

```

===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
2
===== All Recipes =====

```

Id	Name	Description	Ingredients	Category
1	Bun Bo Hue	Bun Bo Hue	Bun,Bo,Xuong Heo	Bun
2	Pho Nam Dinh	Pho Nam Dinh	Pho,Xuong Heo,Gia Vi	Pho

- Search Recipes

```

===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
3
===== Search Recipes =====
Enter keyword:
Bun
===== Search Results =====

```

Id	Name	Description	Ingredients	Category
1	Bun Bo Hue	Bun Bo Hue	Bun,Bo,Xuong Heo	Bun

- Import Recipes

```

===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
4
===== Import Recipes =====
1. Import from JSON
2. Import from Excel
3. Main menu
Enter your choice:
1
Enter json file path:
data.json
Import success!
===== Import Recipes =====
1. Import from JSON
2. Import from Excel
3. Main menu
Enter your choice:
3
===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
2
===== All Recipes =====
Id   Name      Description      Ingredients      Category
1    bun      bun ca          bun,ca,hanh      bun
2    pho      pho bo         pho,bo,hanh      pho

```

- Export Recipes

```

===== Recipe Manager =====
1. Add a recipe
2. View all recipes
3. Search recipes
4. Import recipes
5. Export recipes
6. Exit
Enter your choice:
5
===== Export Recipes =====
1. Export to JSON
2. Export to Excel
3. Main menu
Enter your choice:
2
Enter.xlsx file path:
VietFood.xlsx
Export success!

```

Estimated Time: 180 minutes.

Mark Scale:

OOP design	10%	Function requirements	60%
Business rules	15%	Main function	15%