**University of Westminster**
Department of Computer Science

# 5COSC023W Coursework 2 (Semester 2)

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| Module leader | Dr D. Dracopoulos |
| Unit | Coursework 2 |
| Weighting: | 50% |
| Qualifying mark | 30% |
| Description | |
| Learning Outcomes Covered in this Assignment: | LO1, LO2, LO3, LO4, LO5 |
| Handed Out: | March 2026 |
| Due Date | 27/4/2026 13:00 |
| Expected deliverables | Source code/XML files/Resources (images, etc)/Video |
| Method of Submission: | Online via Blackboard |
| Type of Feedback and Due Date: | Individual feedback via Blackboard within 3 weeks of submission<br><br>**All marks will remain provisional until formally agreed by an Assessment Board.** |

## Assessment regulations

Refer to section 4 of the "How you study" guide for undergraduate students for a clarification of how you are assessed, penalties and late submissions, what constitutes plagiarism etc.

## Penalty for Late Submission

If you submit your coursework late but within 24 hours or one working day of the specified deadline, 10 marks will be deducted from the final mark, as a penalty for late submission, except for work which obtains a mark in the range 40 – 49%, in which case the mark will be capped at the pass mark (40%). If you submit your coursework more than 24 hours or more than one working day after the specified deadline you will be given a mark of zero for the work in question unless a claim of Mitigating Circumstances has been submitted and accepted as valid.

It is recognised that on occasion, illness or a personal crisis can mean that you fail to submit a piece of work on time. In such cases you must inform the Campus Office in writing on a mitigating circumstances form, giving the reason for your late or non-submission. You must provide relevant documentary evidence with the form. This information will be reported to the relevant Assessment Board that will decide whether the mark of zero shall stand. For more detailed information regarding University Assessment Regulations, please refer to the following website :http://www.westminster.ac.uk/study/current-students/resources/academic-regulations

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# 5COSC023W MOBILE APPLICATION DEVELOPMENT - Assignment 2
## *Deadline 27/4/2026, 13:00*

Dr Dimitris C. Dracopoulos
*Email:* d.dracopoulos@westminster.ac.uk

## Description

You are required to implement an Android application using Kotlin and Jetpack Compose described by the specifications below.

**You are not allowed to use third-party libraries (for example, Glide, Coil, Retrofit, Volley, OKHttp. etc). The only libraries that you can use are the standard Android API libraries found in the following URL (with the exception of Views that you should NOT use):**

`https://developer.android.com/reference/`

**Your are not allowed to use View classes. You should use Jetpack Compose instead.**

**You should NOT disable `Activity` recreation (e.g. when screen orientation changes) for any parts of your work. You should also not disable re-orientation of the device.**

**It is important to follow exactly the specifications and your implementation must conform to these:**

The application developed will be helping users with meal preparation.

The application will be using the `https://www.themealdb.com/api.php/` Web service and the Room Library to save information about meals.

1. When the application starts, it presents the user with 3 buttons labelled *Add Meals to DB*, *Search for Meals By Ingredient* and *Search for Meals. (2 marks)*

2. Clicking on the `Add Meals to DB` button saves all the details of a few meals in an SQLite database local to the mobile device using the Room library. The specific information of the meals which will be saved is shown in the following link and the information saved could simply be hardcoded in the application.

   `https://ddracopo.github.io/DOCUM/courses/5cosc023w/meals.txt`

   An appropriate database with appropriate tables should be created and populated by your application, based on the above data.

   *(20 marks)*

- 5 marks for the creation of the database
- 5 marks for the creation of tables with appropriate structure
- 5 marks for the population of tables
- 5 marks for saving all the fields from the given file to the DB

3. The application is using the following Web service:

   `https://www.themealdb.com/api.php/`

   The documentation of how to use the Web service is in the above web page. For example, the following request (type this in your web browser):

   `https://www.themealdb.com/api/json/v1/1/search.php?s=Arrabiata`

   will give you back the results (in JSON format) of searching the meal with name "Arrabiata":


```
{"meals":[{"idMeal":"52771","strMeal":"Spicy Arrabiata Penne",
"strDrinkAlternate":null,"strCategory":"Vegetarian","strArea":"Italian",
"strInstructions":"Bring a large pot of water to a boil. Add kosher
salt to the boiling water, then add the pasta. Cook according to the
package instructions, about 9 minutes.,
"strTags":"Pasta,Curry",
"strYoutube":"https:\/\/www.youtube.com\/watch?v=1IszT_guI08",
"strIngredient1":"penne rigate","strIngredient2":"olive oil",
"strIngredient3":"garlic",
"strIngredient4":"chopped tomatoes","strIngredient5":"red chile flakes",}] .....}
```


   Clicking on the `Search for Meals By Ingredient` button will present the user with a screen displaying a single textbox and 2 buttons `Retrieve Meals` and `Save meals to Database`.

   The user will be using the textbox to type the name of an ingredient and click the `Retrieve Meals` button to retrieve all the details of all the meals containing this ingredient from the Web service. The details of each meal will be displayed as part of the same screen of the application in the following format, for example if the user searches for "chicken" as an ingredient:


```
"Meal":"Brown Stew Chicken",
"DrinkAlternate":null,
"Category":"Chicken",
"Area":"Jamaican",
"Instructions":"Squeeze lime over chicken and rub well....",
"Tags":"Stew",
"Youtube":"https:\/\/www.youtube.com\/watch?v=_gFB1fkNhXs",
"Ingredient1":"Chicken",
"Ingredient2":"Tomato",
"Ingredient3":"Onions",
"Ingredient4":"Garlic Clove",
"Ingredient5":"Red Pepper",
"Ingredient6":"Carrots",
"Ingredient7":"Lime",
```

```
"Ingredient8":"Thyme",
"Ingredient9":"Allspice",
"Ingredient10":"Soy Sauce",
"Ingredient11":"Cornstarch",
"Ingredient12":"Coconut Milk",
"Ingredient13":"Vegetable Oil",
"Measure1":"1 whole",
"Measure2":"1 chopped",
"Measure3":"2 chopped",
"Measure4":"2 chopped",
"Measure5":"1 chopped",
"Measure6":"1 chopped",
"Measure7":"1",
"Measure8":"2 tsp",
"Measure9":"1 tsp ",
"Measure10":"2 tbs",
"Measure11":"2 tsp",
"Measure12":"2 cups ",
"Measure13":"1 tbs",


"Meal":"Chicken & mushroom Hotpot",
"DrinkAlternate":null,
"Category":"Chicken",
"Area":"British",
"Instructions":"Heat oven to 200C\/180C fan\/gas 6.... ",
"Tags":null,
"Youtube":"https:\/\/www.youtube.com\/watch?v=bXKWu4GojNI",
"Ingredient1":"Butter",
"Ingredient2":"Onion",
"Ingredient3":"Mushrooms",
"Ingredient4":"Plain Flour",
"Ingredient5":"Chicken Stock Cube",
"Ingredient6":"Nutmeg",
"Ingredient7":"Mustard Powder",
"Ingredient8":"Chicken",
"Ingredient9":"Sweetcorn",
"Ingredient10":"Potatoes",
"Ingredient11":"Butter",
"Measure1":"50g",
"Measure2":"1 chopped",
"Measure3":"100g ",
"Measure4":"40g",
"Measure5":"1",
"Measure6":"pinch",
"Measure7":"pinch",
"Measure8":"250g",
"Measure9":"2 Handfuls",
"Measure10":"2 large",
```

```
"Measure11":"1 knob",


"Meal":"Chicken Alfredo Primavera",
"DrinkAlternate":null,
"Category":"Chicken",
"Area":"Italian",
"Instructions":"Heat 1 tablespoon of butter and 2 tablespoons of .... ",
"Tags":"Pasta,Meat,Dairy",
"Youtube":"https:\/\/www.youtube.com\/watch?v=qCIbq8HywpQ",
"Ingredient1":"Butter",
"Ingredient2":"Olive Oil",
"Ingredient3":"Chicken",
"Ingredient4":"Salt",
"Ingredient5":"Squash",
"Ingredient6":"Broccoli",
"Ingredient7":"mushrooms",
"Ingredient8":"Pepper",
"Ingredient9":"onion",
"Ingredient10":"garlic",
"Ingredient11":"red pepper flakes",
"Ingredient12":"white wine",
"Ingredient13":"milk",
"Ingredient14":"heavy cream",
"Ingredient15":"Parmesan cheese",
"Ingredient16":"bowtie pasta",
"Ingredient17":"Salt",
"Ingredient18":"Pepper",
"Ingredient19":"Parsley",
"Ingredient20":"",
"Measure1":"2 tablespoons",
"Measure2":"3 tablespoons",
"Measure3":"5 boneless",
"Measure4":"1 teaspoon",
"Measure5":"1 cut into 1\/2-inch cubes",
"Measure6":"1 Head chopped",
"Measure7":"8-ounce sliced",
"Measure8":"1 red",
"Measure9":"1 chopped",
"Measure10":"3 cloves",
"Measure11":"1\/2 teaspoon",
"Measure12":"1\/2 cup",
"Measure13":"1\/2 cup",
"Measure14":"1\/2 cup",
"Measure15":"1 cup grated",
"Measure16":"16 ounces",
"Measure17":"pinch",
"Measure18":"pinch ",
"Measure19":"chopped",
```

`"Measure20":"",`

*(20 marks)*

- Creation of buttons: 3 marks
- Retrieve all data: 5 marks
- JSON parsing: 7 marks
- Displaying all the data appropriately according to the course specification: 5 marks

4. Following this, if the user clicks on the second button `Save meals to Database` all the retrieved details of all the retrieved meals will be saved to the SQLite database of the device (using the Room library), by using the same tables which were utilised in the previous subquestion.

   *(10 marks)*

5. Clicking on the `Search for Meals` button will display the user with a screen which contains a single textbox and a `Search` button.

   The user can type in the textbox any string which is part of any the name of an meal or an ingredient for a meal and subsequently press the `Search` button to display **ALL** the meals in the database which contain the typed string in the *Name* or *Ingredients* fields of the meal in the corresponding table containing this information.

   The search should be case insensitive and a match does not have to be a complete match but partial. I.e. if the user types the string "pEp" the displayed meal(s) could be, a meal which contains "Roasted Peppers" or "red pepper" in the list of meals (names or ingredients of meals).

   *(13 marks)*

   - Search is case insensitive: 4 marks
   - Search is based on a substring match, not a full match: 4 marks
   - Search displays all the meals: 5 marks

6. Extend the application so that when the user clicks on the `Search for Meals` button (in the last subquestion) all the meals displayed are also displaying their image (it could be a small thumbnail image)

   *(8 marks)*

7. Extend the application so that the initial screen contains an additional button which the user can press and subsequently type a string. All meals containing the string as part of their name will be retrieved directly from the **Web service (NOT THE DATABASE)** and displayed to the user.

   For example, if the user types "CHi" all of the meals in the TheMealDB Web service containing this substring in their name will be retrieved and displayed to the user. These could be "The Chicken Kiev", "cHicken French", etc.

   *(10 marks)*

   - Just one meal is displayed: 2 marks
   - Search is not case sensitive: 3 marks

- At least 10 meals (or the first page from the Web Service) are displayed: 5 marks

8. For all the tasks, the application should behave in a user friendly manner when the device is rotated from portrait to landscape and back to portrait mode. I.e. the application should resume from exactly the same point (same screen and data) when the orientation changes. The rotation of the device should not change what was the user was seeing before the rotation.

   **You should NOT disable `Activity` recreation (e.g. when screen orientation changes) for this or any parts of your work. You should also not disable re-orientation of the device.**

   *(9 marks)*

   - 1-5 marks: partial implementation
   - 6-9 marks: minor omissions

**Marking Scheme**: The marks achieved for each part of the program are indicated in the description of the task above. In addition to these the following will be taken into account:

- *Code readability* (structure, comments, variable naming, etc,): 4%
- *Implementation* (e.g. quality, efficiency, look and feel of the application, based on fonts, colours, etc.): 4%

**In addition to the above marks indicated in each of the sub-questions in the specification, additional marks will be deducted if an application behaves in an unexpected way. For example, an application should not crash, the application should work properly even if a user enters invalid data or rotate the device**.

**The maximum for work which does not compile (or XML or other resources files with syntax errors causes the project not to build) is 30%.**

**Failure to submit a video or a working link to a video will result to a capping of your mark to 30% (i.e. if your submitted work is given initially a mark above 30% it will be capped to 30%).**

**Submission of assignments using a different method other than Blackboard will not be accepted and zero (0) marks will be awarded in such cases. The exception is a working link to a video outside Blackboard.**

**Deadline**: Monday 27th of April 2026, 13:00.

## Submission Instructions

*Files to submit*:

1. All of the files of the Android Studio project of your application in a zip file.

2. A video demonstrating all the functionality that you implemented for your application. If the video size exceeds the size allowed by Blackboard you can submit a link to a video to another site (e.g. Google Drive, Youtube, etc.) where you have uploaded the video. Make sure that if your video is located to another web site and not Blackboard that you have given appropriate permissions to external people to access your video.

   **Video Guidelines**:

   (a) Try to keep it as short as possible to demonstrate all of the functionality that you implemented. It should not be more than a few minutes.

   (b) You should not explain any code just show the functionality.

   (c) Audio should accompany the demo of the functionality, e.g.. "I press this button and this happens"

   (d) Make sure that if you submit the video in an external site (youtube, etc) everyone has permissions to watch it. Otherwise, it will count as no submission of the video. If you included the video as part of your Blackboard submission this does not apply.

   (e) It would be helpful if you state which tasks you did not implement at all or implemented partially.

   Therefore an example of the format could be:

   (a) Here is task 1, I press this and this happens. I rotate the device and this happens. etc....

   (b) Here is task 2, ....

   (c) I did not attempt task3.

   (d) I partially implemented task 4, this is what I have.

   (e) I did not implement tasks 5, 6, 7, 8.

*Referencing code:* Any code taken from other resources (i.e. a textbook or internet) should be referenced in comments within your code (full textbook details or full web URL), identifying the exact code that you used it as part of your application and the exact portions of the original source code that you reused.

You should submit via BlackBoard's Assignment functionality (do NOT use email, as email submissions will be ignored.), all the files described above. A single zip file with the name `wNNNNNNNN` (where `wNNNNNNN` is your university ID login name) containing all the above files could be submitted alternatively. You can create such a file by using the main menu in Android Studio and choose `File->Manage IDE Settings->Export to Zip File...`

**Note that Blackboard will allow to make a submission multiple times. Make sure before submitting (i.e. before pressing the `Submit` button), that all the files you want to submit are contained there (or in the zip file you submit).**

**In the case of more than one submissions, only your last submission before the deadline given to you will be marked, so make sure that all the files are included in the last submission attempt and the last attempt is before the coursework deadline.**

**Request to mark submissions which are earlier than the last submission before the given deadline will be ignored as it is your responsibility to make sure everything is included in your last submission**.

The following describes how to submit your work via BlackBoard:

1. Access `https://learning.westminster.ac.uk` and login using your username and password (if either of those is not known to you, contact the Service Desk, tel: +44 (0) 207 915 5488 or log a call via `https://servicedesk.westminster.ac.uk`.).
2. Click on the module's name, `MODULE: 5COSC023W.2025 MOBILE APPLICATION DEVELOPMENT` found under `My Modules & Courses`.
3. Click on the `Assessment->Submit Coursework->Coursework`.
4. Click on `View Assignment`.
5. Attach your zip file containing all the Kotlin source code files and resources of the Android Studio Project, by using the `Browse` button.
6. Attach your video or include a link of your video as the first comment line) in the MainActivity of your code.
7. Create a Word or PDF file with the following information:
   - *Comments*: Type your full name and your registration number, followed by: "I confirm that I understand what plagiarism is and have read and understood the section on Assessment Offences in the Essential Information for Students. The work that I have submitted is entirely my own. Any work from other authors is duly referenced and acknowledged."
8. Attach the file with the statement above.
9. Check that you have attached both the zip, the video (or the video link) and the statement file.
10. Click the `Submit` button.

If Blackboard is unavailable before the deadline you must email the Registry at `studentcentre@westminster.ac.uk` with **cc:** to myself and your personal tutor before the deadline with a copy of the assignment, following the naming, title and comments conventions as given above and stating the time that you tried to access Blackboard. You are still expected to submit your assignment via Blackboard. Please keep checking Blackboard's availability at regular intervals up to and after the deadline for submission. You must submit your coursework through Blackboard as soon as you can after Blackboard becomes available again even if you have also emailed the coursework to the above recipients.