

INFS 1101 – Assignment 2

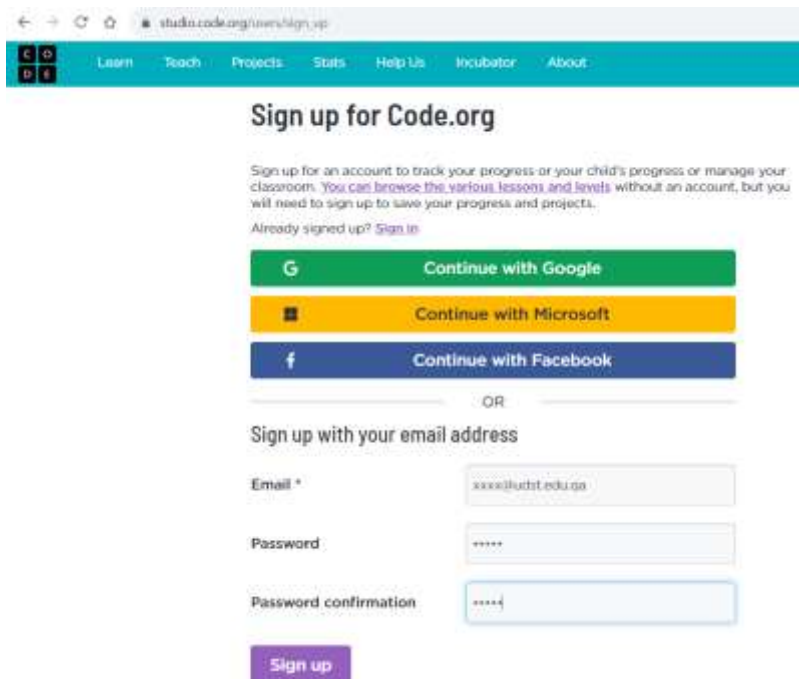
General Instructions

- The second Assignment consists of two parts:
 - Part I consists of developing algorithms and implementing them in code blocks on Code.org.
 - Part II is the coding part where you will develop algorithms and illustrate them in flowcharts and implement them in python programs.
- **This is an individual assignment.** Please review the Plagiarism and Academic Integrity policy presented in the first class.
- You can make multiple submissions, but only the last submission before the deadline will be graded. **Keep in mind that for each day your submission is late, a 25% deduction from your grade will be applied.**
- You should submit 2 files at the completion of the assignment, a screenshot of the first part and a zip file containing the Part 2's requirements, both files should be called assignment2_xxxxxxx where you change xxxxxxxx to your student number.

Part I

Instructions

1. Create an account at Code.org



The screenshot shows the Code.org sign-up page in a web browser. The browser's address bar displays 'studio.code.org/new/sign-up'. The page has a teal header with navigation links: 'Learn', 'Teach', 'Projects', 'Stats', 'Help Us', 'Incubator', and 'About'. The main heading is 'Sign up for Code.org'. Below this, a paragraph explains the benefits of signing up, including tracking progress and managing a classroom. It also mentions that users can browse lessons and levels without an account but need one to save progress. A link for 'Already signed up? Sign in' is provided. There are three large buttons for social login: 'Continue with Google' (green), 'Continue with Microsoft' (yellow), and 'Continue with Facebook' (blue). Below these is an 'OR' separator. The section 'Sign up with your email address' contains three input fields: 'Email *' (with the placeholder 'xxx@lucht.edu.qa'), 'Password', and 'Password confirmation' (both with placeholder dots). A purple 'Sign up' button is at the bottom.

2. Choose account type: **student**. In the 'Display Name' area, type in your **full name**.

The screenshot shows the Code.org sign-up page. At the top, there's a navigation bar with links: Learn, Teach, Projects, Stats, Help Us, Modules, and About. The main heading is "Finish creating your account" with a subtext: "Fill out the following information to finish creating a Code.org account for [xxxx@code.org](#). Cancel".

Under "Account Type", there are two options:

- Student:** Explore all our courses and activities, also:
 - Save your progress and projects
 - Join your teacher's classroom section
- Teacher:** Everything students have access to, plus:
 - Create classroom sections
 - Assign and track student work
 - Enroll in professional learning
 - Interact on our teacher forum

Below these is a checkbox: "I am a parent/guardian signing up on behalf of my child".

Then, there are input fields for:

- Display name (e.g. Cool Coder or Jane S.J):
- Age:
- Gender (optional):

At the bottom, it says: "By signing up for Code.org, you agree to our [Terms of Service](#) and [Privacy Policy](#)". There is an orange button labeled "Go to my account".

3. Scroll down to join your class section. To join section X, type in [the](#) code provided by your instructor.

The screenshot shows the "Classroom Sections" page. The heading is "Classroom Sections". Below it, the text says: "Join your teacher's classroom by entering their section code below. Teachers will be able to see your course progress, projects, and reset your password in case you forget it."

There is a large dashed box containing the text "Join a section" and "Join a teacher's section by entering their Section Code". To the right of this box is an input field with the placeholder "XXXX" and a button labeled "Join section".

At the bottom of the page, there is a purple footer bar with links: [Privacy Policy](#), [Volunteer to translate our content](#), [Help and support](#), [Store](#), and [Terms](#). On the right, there is a language selector dropdown set to "English". Below the links, it says: "Engineers from Amazon, Google, and Microsoft helped create these materials. Microsoft and Google generously donated hardware with which to build our classrooms. For more..." On the far right, it says "© Code.org, 2021".

4. You should see a confirmation message similar to the one below. Click on the Express Course (2023) link to access the exercises.

Classroom Sections

Join your teacher's classroom by entering their section code below. Teachers will be able to see your course progress, projects, and reset your password in case you forget it.



Section	Course	Teacher	Section Code
INF5103-37	Express Course (2021)	Amal	XXXX

5. Work through all the steps of the following block code exercises:

1. Programming with Angry birds
2. Debugging in Maze
3. Collecting Treasure with Laurel
4. Creating Art with Code
5. If/Else with bee
6. While Loop in Farmer

Make sure to figure out the most efficient way to design your algorithms, i.e., using the least amount of code blocks possible.

6. Submit a screenshot of your progress on Dropbox. It should look similar to the example shown below. Please be aware that we may verify your work by inspecting your progress on the code.org console. Make sure your **name** is visible in the photo.

Submission Example :

CS

DL

[My Dashboard](#) [Course Catalog](#) [Projects](#) [Professional Learning](#) [Innovator](#)

Create

Susan

Express Course (2022)

Version: 2022

Learn computer science by trying the lessons below at your own pace! Learn to create computer programs, develop problem-solving skills, and work through fun challenges! Make games and creative projects to share with friends, family, and teachers.

Teacher resources

Printing Options

Active section:

INSTRUCTIONS

Assign to sections

Show All Lessons

Hide All Lessons

Sequencing

Lesson Name	Progress
1. Programming with Angry Birds	1 2 3 4 5 6 7 8 9 10 11 12 13
2. Debugging in Haze	1 2 3 4 5 6 7 8 9 10
3. Collecting Treasures with Laurel	1 2 3 4 5 6 7 8 9 10 11 12 13
4. Creating Art with Code	1 2 3 4 5 6 7 8 9 10

Conditionals

Lesson Name	Progress
14. Looking Ahead with Microsoft	1 2 3 4 5 6 7 8 9 10 11 12 13 14
15. 5-True with Bee	1 2 3 4 5 6 7 8 9 10 11 12 13
16. While Loops in Farmer	1 2 3 4 5 6 7 8 9 10 11 12 13
17. Conditionals in Microsoft: W...	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
18. Until Loops in Haze	1 2 3 4 5 6 7 8 9 10 11
19. Harvesting with Conditionals	1 2 3 4 5 6 7 8 9 10 11

Part II

Instructions

For each of the following exercises, you will need to illustrate an algorithm in a flowchart and also implement it in python, the flowchart needs to be developed in drawio

<https://app.diagrams.net/>, export your work as png and insert it in a word file after the number of each exercise in the following format:

Exercise 1:

Flowchart 1

Exercise 2:

Flowchart 2

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You will need to develop a python code with IDLE [Download Python | Python.org](https://www.python.org/), develop one program per exercise, store all the programs in one zip file (in total three files) alongside the word file that contains the flowcharts and upload them on dropbox,

Exercise 1:

You're organizing a picnic, you need to do a rough estimation about its cost so you and your friends can adjust your budget,

- a) Ask the user for the price of a sandwich and the price of a drink.
- b) Ask the user how many sandwiches and drinks they plan to buy.
- c) Calculate the total expense and store it in a variable called **total_expense**.
- d) Print out the total expense for the picnic.

Sample Run 1:

```
Enter the price of a sandwich: 3.5
Enter the price of a drink: 1.8
How many sandwiches are you buying? 6
How many drinks are you buying? 5
Total expense for the picnic is 30.00Qar
```

Sample Run 2:

Enter the price of a sandwich: 4
Enter the price of a drink: 2
How many sandwiches are you buying? 4
How many drinks are you buying? 4
Total expense for the picnic is 24.0Qar

Exercise 2:

Some of your friends prefer a very specific temperature range for an outdoor picnic.

- a) Ask the user for the predicted temperature in Celsius for the picnic day.
- b) Convert this temperature to Fahrenheit.
- c) Using the converted Fahrenheit temperature, check:
 - If the temperature is between 70°F and 80°F, print "Perfect weather for an outdoor picnic!"
 - Else if the temperature is above 80°F, print "It might be too hot for an outdoor picnic."
 - Else, print "Might be too cold for an outdoor picnic."

Sample Run 1:

Enter the predicted temperature in Celsius: 25
The temperature in Fahrenheit is 77.0°F.
Perfect weather for an outdoor picnic!

Sample Run 2:

Enter the predicted temperature in Celsius: 40
The temperature in Fahrenheit is 104.0°F.
It might be too hot for an outdoor picnic.

Exercise 3:

You realize that just food and a good location might not be enough. To make the picnic more enjoyable, you have decided to organize some games. Depending on the number of participants, you will decide which game to play.

a) Ask the user for the number of participants.

b) Write a conditional statement:

- If there are 2 participants, suggest "Let's play a card game!"
- If there are 3 to 4 participants, suggest "How about a board game?"
- If there are 5 or more participants, suggest "Team sports like soccer or volleyball would be fun!"
- If there's only 1 participant, suggest "How about a nice book or some music for relaxation?"

c) Print out the game suggestion based on the number of participants.

Sample Run 1:

How many participants are there for games? 5

Team sports like soccer or volleyball would be fun!

Sample Run 2:

How many participants are there for games? 3

How about a board game?

Exercise 4:

You want to ensure that the names of your friends on the picnic invitations are presented neatly. But, to avoid potential errors or typos, you also want to give feedback if a name seems unusually short or long.

- Ask the user for the first name of their friend.
- Ask the user for the last name of their friend.
- Ensure the first letter of both the first name and the last name are capitalized, while the rest of the letters are in lowercase.
- Formulate a full name by combining the first and last name, separated by a space.

Verify the following conditions:

- If the combined length of the first and last name (excluding space) is less than 4, print "This name seems too short. Are you sure it's spelled correctly?"
- If the combined length of the first and last name (excluding space) is greater than 40, print "This name seems quite long. Are you sure it's spelled correctly?"
- Otherwise, print "Invitation prepared for [Full Name]!"

Sample Run 1:

Enter the first name of your friend: j

Enter the last name of your friend: D

This name seems too short. Are you sure it's spelled correctly?

Sample Run 2:

Enter the first name of your friend: MONICAelizabethJondoe

Enter the last name of your friend: garcIAwilliamsthethird

This name seems quite long. Are you sure it's spelled correctly?

Sample Run 3:

Enter the first name of your friend: MONICA

Enter the last name of your friend: garcIA

Invitation prepared for Monica Garcia!