



Introduction to Computing (ITC511S/ICG511S)

Assignment Structure

20 April 2021

Course Aims

This course introduces students to programming concepts and techniques required to solve computing-related problems. Students will learn how to brainstorm about a given problem, decompose and reduce its complexity and define the modules that form parts of the solution. They will be exposed to how to represent data as a compact bloc of information, define a sequence of instructions as part of the solution, iterate over a subset of those instructions or select a part of it.

Important note: Please familiarise yourself with the aim of the course, as well as the learning outcomes while you are busy with your assignment.

Instructions to Students

- The assignment contributes to your final mark. The assignment has two parts (please see the Rubric).
- Please feel free to contact your lecturer if you have any questions or problems regarding the assignment.
- The project is to be completed in a group of 4 or 5 students. The group partners will be formed by the lecturers, and the groups will be shared on elearning.
- The assignment has a deadline, please respect, and deliver on time. The DUE DATE is the 26th of May 2021.
- Kindly use the rubric given to determine the amount of effort required on each assignment component.
- If students are found to have plagiarized, this is a crime, serious actions will be taken.

Advice to the Groups

- Before you start with your assignment, please brainstorm, and have discussions in the group to create a common understanding.
- Please do a lot of research (online, library, etc.) and reading. Please note that if you are struggling with how to do this, please request advice from the lecturing team.

- Try to handle all project issues such as group members not participating. This is not easy, therefore if you do not know how to handle this, please request advice from the lecturing team. Please do not wait for a long time to request advice, do it ASAP.

Important note: When you are requesting advice via email on assignment-related activities, please make sure that all members in your group are part of the mail list. This is to maintain transparency in assignment-related inquiries.

Project Description

Our Story

Our drive to better your beauty routine sets the foundation for every Ayesha Beauty creation, a Kamanjab village-based manufacturer in the Beauty, Personal Care, and Cosmetic sector. We are looking to you and your every day for inspiration, then infusing the highest-quality ethically sourced materials, indigenous ingredients, and technology to offer solutions you will revel in, using knowledge shared over generations amongst Namibian matriarchs.

Every innovative beauty tool, texture, formula, and cosmetic colour makes your life easier, more fun, and uniquely beautiful. Our products deeply moisturize, strengthen, stimulate growth, and radiate a natural glow for all hair and skin textures.

Our female team has joined together, and we have not stopped developing new ways to transform your beauty routine. We are listeners and problem solvers working to empower all beauty users' lives, it is what sets us apart.

Our product range is distributed by Dischem Pharmacies Namibia and PnP Namibia Stores.

Activity

Imagine you are hired as a Junior IT Consultant by Ayesha Beauty Creation to design them an application for their daily operations based on the above story.

The desired outcome is the development of an application that:

- creates value for the business measured in *financial returns per product/service portfolio*,
- *create efficiency in the human resource function*,
- *create customer relationship management database to serve as a sales tool*.

You are required to design an application that Ayesha Beauty Creation can use. Kindly use the rubric below to design the application.

Part 1

(Algorithms and System Design) - [70 Marks]

In this part, students are expected to design algorithms that implements the solution as described in the problem statement. Variables names, modules and functions must be clearly defined.

Criteria	Poor Work	Below Average	Average Work	Above Average	Exceptional Work
Modules	No modules exist at all. (0)	Modules exist but do not help much in solving the problem. (3)	At least three suitable modules are clearly distinguished. (5)	More than three clearly spelled modules exist. (7)	Brilliant decomposition applied makes the problem very easy to solve. (9)
Functions	Functions poorly defined and do not help much in solving the problem. (3)	Functions are defined but at times combine several purposes. (6)	At least 5 well defined functions exist. (9)	More than 5 well-defined functions exist. (13)	All functions defined are necessary and stick to their purpose. (15)
Pseudocode	The pseudocode is not sound at all and it is difficult to follow. (5)	Although sound, the pseudocode is lengthy and not precise. (10)	The logic of the pseudocode is sound and the logic easy to follow. (15)	Sound and precise pseudocode with some comments on it. (20)	Pseudocode presented in modules, also sound, precise, and easy to follow. (25)
Flowchart	A flowchart presented is flawed with wrong symbols and no software used. (3)	Although appropriate software was used, some symbols were wrong. (6)	A sound flowchart with all components exists using the right symbols. (8)	Appropriate software is used to develop a sound flowchart with the right symbols. (10)	Connectors are used to join a sound flow chart using suitable software. (12)
Documentation	No README file in the repository. (0)	A README document exists in the repository but does not clearly describe the project. (3)	A well-documented README exists in the git repository clearly explaining what the project does. (5)	A README document briefly describes the solution in general and also the modules available. (7)	Apart from general description, modules and Functions are also described with names of contributors available. (9)
TOTAL	11	28	42	57	70

Part 2

(System Implementation: using Scratch) - [30 Marks]

Implement the system designed in Part 1 using scratch programming language.

Criteria	Below Expectation	Met Expectation	Surpass Expectation
<i>Creativity</i>	<i>A dull assignment that does not fit a first-year student at university. The assignment seems like blocks were just thrown without making a good meaningful project. (1)</i>	<i>The assignment is meaningful, and the flows are acceptable at NQF5 even though some improvements could have been made. (3)</i>	<i>Choice of colours, sounds, and other components fuse seamlessly to make one fantastic assignment above NQF5. (10)</i>
<i>Logic</i>	<i>Simple sequential control structures are used in the assignment and nothing more. (1)</i>	<i>Several logical operations exist in the assignment and the whole assignment is sound. (3)</i>	<i>Some interesting programming constructs exist in the assignment. (10)</i>
<i>Effort</i>	<i>The assignment seems like it is a weekend's effort without much time dedicated to the project. (1)</i>	<i>A reasonable amount of time satisfactory to the evaluators seems to have been committed to the assignment. (3)</i>	<i>The amount of time put into the assignment surpasses the evaluator's expectation. (10)</i>
TOTAL	3	9	30

NB: The marks in bold indicate the maximum that a student can attain under each category, meaning a lower mark can be attained at the evaluator's discretion.

(Note: Students are allowed to expand the scenario as long as it remains in the confinement of the above storyline. Deliberations on the scenario can be done in the tutorial class or students can interview people working in the Beauty, Personal Care, and Cosmetic sector to understand some daily operations involved – if it is needed).

Note: Where a certain function/requirement cannot be implemented in scratch due to platform limitation if any, justification should be provided.

Important note: Please be reminded that your assignment work is confidential and private. You can only share with your group members.

Assessment/Submission notes

- Students are expected to show the key components of their assignment within 5 minutes before doing a quick demo.

- Your lecturer may demand to see the Trello contributions of the team to see those who were sitting idle. Therefore, your Trello collaboration team to trace individual's contributions must be submitted. Your lecturer is at liberty to deduct marks from a group member who was not working. A penalty of at most 10 marks may be given.
- Links to solutions are to be shared on e-learning for assessment purposes. It is advised to make use of **Github platform for Part 1** (see the Rubric) and the **Scratch platform for Part 2** (see the Rubric). All submissions are done on eLearning (no hard copies, nor email submissions will be accepted).

Note: *Scratch* is a visual programming language that allows students to create their own interactive stories, games, and animations. As students design **Scratch** projects, they learn to think creatively, reason systematically, and work collaboratively.

Note: **GitHub** is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere. This tutorial teaches you **GitHub** essentials like repositories, branches, commits, and Pull Requests.