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Week 2 – Problem Solving, Creative Thinking and Storyboarding (5%)

Exercise 1: Puzzles & Brainteasers

1. The Frog
A frog is at the bottom of a 30 metre well. Each day he summons enough energy for one 3 metre leap up the well. Exhausted, he then hangs there for the rest of the day. At night, while he is asleep, he slips 2 metres backwards. How many days does it take him to escape from the well?
Note: Assume after the first leap that his hind legs are exactly three meters up the well. His hind legs must clear the well for him to escape.

Rough Work:
Every one day he moves 1 meter and then on the 27 day he reaches 30 meters but the needs 31 meters to get out and on the 28 day he reaches that goal

Answer: 28 days

2. The Bobber
You can paddle your canoe seven miles per hour through any placid lake. The stream flows at three miles per hour. The moment you start to paddle upstream a fisherman loses one of his bobbers in the water fourteen miles upstream of you.

How many hours does it take for you and the bobber to meet?

Rough Work: im moving 4 mph and the bob is moving 3 mph so together we are moving 7 mph so it will take 2 hours to meet

Answer: 2 hours.

3. The Socks
Cathy has twelve black socks and twelve white socks in her drawer.
In complete darkness, and without looking, how many socks must she take from the drawer in order to be sure to get a pair that match?

Rough Work: it's a 50 50 chance so its 3

Answer: 3

4. There is something about Mary
Mary's mum has four children.
The first child is called April.
The second May.
The third June.
What is the name of the fourth child?

Rough Work:

We had three names of mounths and we know there are four children and on of them are marry

Answer: mary.

Exercise 2: Steps to Solving a Problem

Use the five problem-solving steps to solve the following problem:

Making a toasted sandwich. Write down the steps to identify what is the problem you are faced with, what options you have for solving it and finally what the steps to follow to solve the problem.

- **Step 1:** Identify and Understand the Problem

The problem is that I want have a toasted sandwich and I don't have one

- **Step 2:** Identify Alternative Ways to Solve the Problem

An alternative ways is to eat something else

- **Step 3:** Choose the Best Approach

The best approach is the make a toasted sandwich

- **Step 4:** Create a List of Steps for the Approach and Apply them

Step one is to get the bread

Step two is to get the cheese

Step three is to lay out the bread

Step four is to put the cheese on the bread

Step five is to turn on the grill

Step six is to but the bread and chesses in the grill

Step 7 is to wait 6 minutes

Step 8 enjoy

- **Step 5:** Evaluate the Solution

I should of gone over the steps of stacking the sandwich

Exercise 3: Creative thinking

Use the five stages of the creative process to solve the following problem:

As more and more people are spending time at home these days, we often need to create our own entertainment. Your task is to design a home-made obstacle course to keep you and your family or housemates entertained while stuck indoors. The obstacle course should use only items which can be found around your home. Be sure to consider any rules that should be applied when completing the obstacle course. For example, What happens when a person fails to complete a particular obstacle? Is there a time limit? etc.

Document your thoughts and rough work in each of the 5 stages of the creative process, outlining the activities, ideas and decisions that were involved in each stage.

- **The Project/Task:** First, summarise the task in your own words

Task is to entertain my house mates with a game

- **Stage 1:** Preparation

First step is to hide red cups all around the house and then set up a timer

- **Stage 2:** Incubation

Set a starting line and rules like no looking for the cups before the timer starts

- **Stage 3:** Illumination

The plan is to see how long it takes for each person to find all red cups the shorts time wins

- **Stage 4:** Evaluation

The plan would be that one person at a time runs around the house and finds all red cups which is a set amount

- **Stage 5:** Implementation

the way of wining is to get the best time to find all cups .

Exercise 4: Storyboarding

Using the obstacle course, which you designed in Exercise 3, do the following:
Create a storyboard by following the 6 steps for storyboarding outlined in the slides.

You can use Draw.io to create your storyboard and then copy and paste it here:
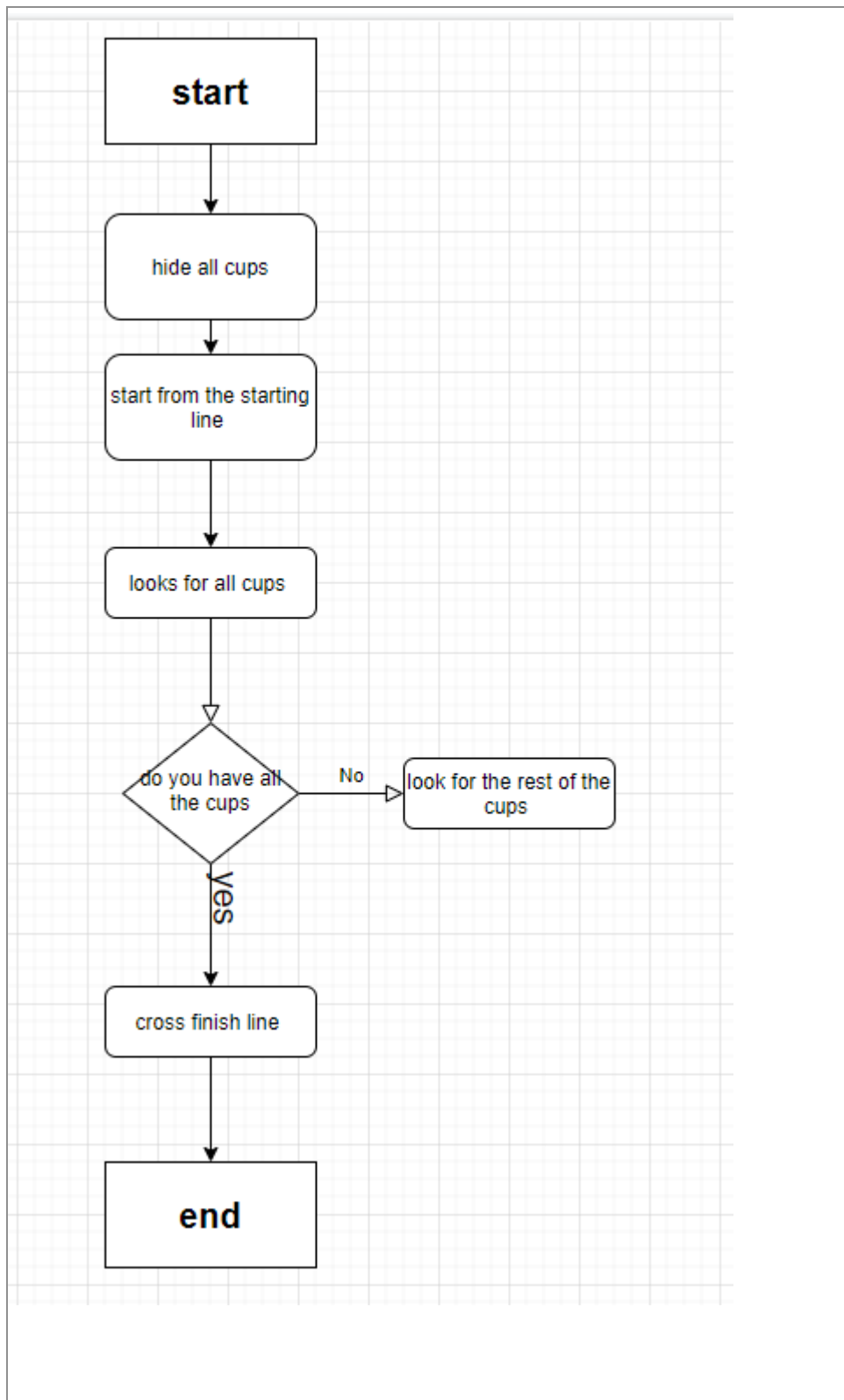
Week 3 – Flow Charts (5%)

Exercise 1: FLow Charts – Homemade obstacle course

Using the examples from the slides as a guide, draw a flow chart for the obstacle course designed in last weeks exercise.
Now that you have planned your obstacle course using a storyboard, its time to expand it further using a flow chart. Use a flow chart to illustrate the process involved in completing the obstacle course. This is a good time to consider any rules for your obstacle course if you havent already done so. For example, when moving from the sofa to the coffee table in the living room, is the floor lava? What happens when a players foot touches the floor? Do they restart the full course or just that obstacle?

You can use Draw.io to create your flow chart and then copy and paste it here:

start

hide all cups

start from the starting line

looks for all cups

do you have all the cups — No → look for the rest of the cups

yes

cross finish line

end

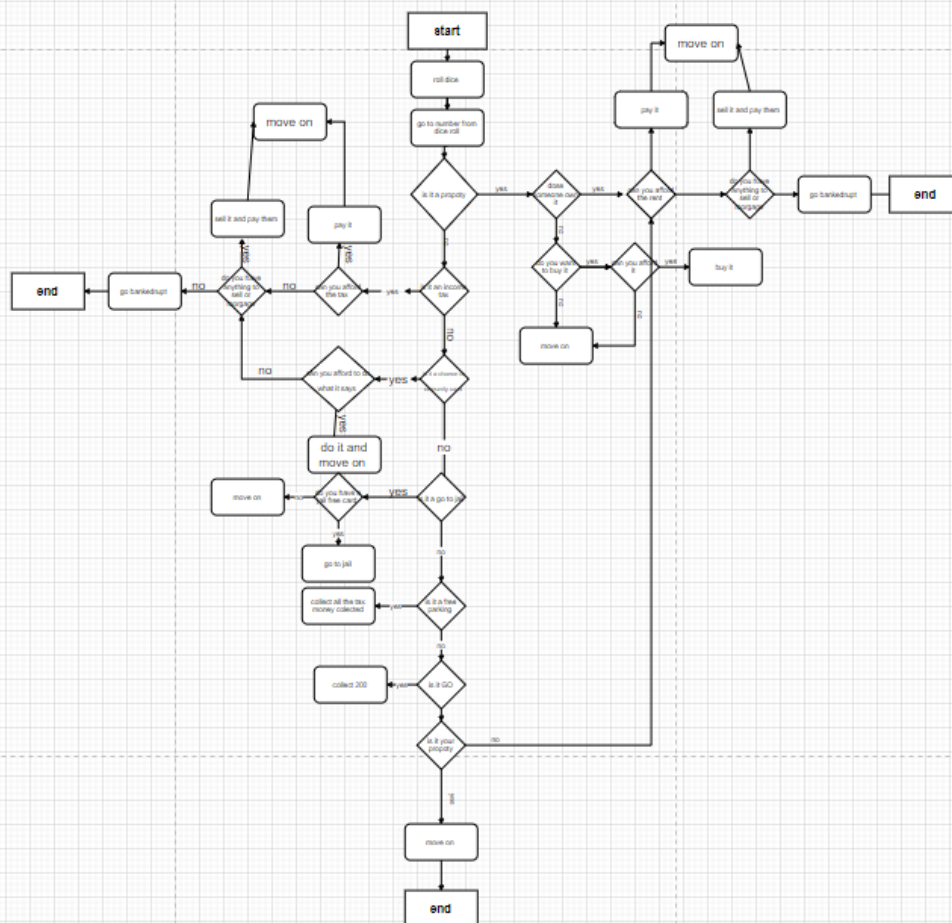Exercise 2: FLow Charts – Taking a Turn in a Game of Monopoly

Using the rules outlined below, draw a flow chart for taking a turn in a game of monopoly.

The rules for taking a turn are outlined below:
1) Roll the dice. Move the number of squares indicated. If you throw doubles, you take another turn after your turn is completed. Each time you pass 'Go', collect $200 from the Bank.
2) Buy properties. You may buy any property from the Bank that you land on if it is not already owned.
3) Building. You may only build when you own all properties in a color group. Building must be equal on all properties in a group. You may place a single building on a single property, but you may not place two buildings on one property unless all other properties in the group have one building present (even build rule). Any property can have a total of 4 houses, except Utilities and Railroads, which cannot be devloped. To place a hotel on a property, 4 houses must be present on all properties in the group. Houses are removed from the property when a hotel is placed. All buildings are purchased from the Bank.
4) Complete necessary actions. Pay rent as determined by the Title Deed for the property you are on. Pay Income Tax to the Bank ($200 or 10% of your total assets). Draw a Community Chest or Chance card and follow the instructions. These cards are returned to the bottom of the pile when the action is completed.

You can use Draw.io to create your flow chart and then copy and paste it here:

<<monooply (1).drawio>>

Week 4 – IPO Charts & Variables(5%)

Exercise 1: Naming Conventions
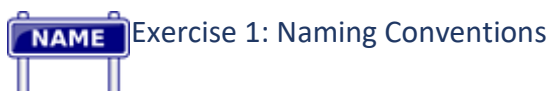
We need a variable to store the first number to be used in a calculation. Here is a list of potential variable names for this data item:

    a. First number
    b. firstNumber
    c. x
    d. first-number
    e. X
    f. number
    g. First_number
    h. number1
    i. numberOne
    j. OneNumber
    k. 1Number
    l. theFirstNumber

Review this list and answer the following questions.

1. According to the Naming Conventions for variables, which of the following are **not** valid variable names for this data item? For each answer, please state why it is not a valid variable name.

Answer: A c e f g h I k

2. Of the list above, which do you think would be the three most suitable names for this data item? For each answer, please state what makes it one of the most suitable variable names.

Answer: B I L

Exercise 2: Variables & Data Types

List an appropriate variable name and data type (numeric, character, String, boolean) for each of the following data items. Please provide an explanation for each choice of data type.

Answer:			
Data Item	**Variable Name**	**Data Type**	**Explanation**
A persons name: "John Smith"	name	sting	A sting because it's a name and its made out of text
The number of students in a class: 45	amount	numeric	Because it made out of numbers
A persons PPS number: "8894663P"	Pps number	string	Because its numbers and text
The price of something: 4.55	price	Numeric	Because it's a number with a decimal
Whether or not a student is present in class: True, False	True or false	boolean	Because it a true or false
A Persons first initial: 'F'	name	character	Because it just an initial
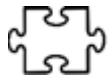
Exercise 3: IPO Charts

Complete the IPO Chart for each of the following problems:

1. You are to develop an application that calculates the cost of a hotel booking. The application should ask the user how many nights they would like to stay in the hotel, and then calculate and output the total cost of their stay assuming that each night costs €60.

Input	Process	Output
How many night the guest wants to stay	No. Of night times 60	The cost of the stay

2. You are to develop an application that calculates the average of 3 whole numbers. The application should accepts 3 numbers from the user and then calculate and output the average of those 3 numbers.

Input	Process	Output
Take in 3 whole numbers	Add them all together and then divided by 3	The average of the 3 whole numbers

Week 5 - Pseudocode (5%)

Exercise 1: Pseudocode

Using the examples from the slides as a guide, write the pseudocode for taking a turn in Monopoly. You should also refer back to the flow chart for this problem which you completed in week 3.

Here is a reminder of the rules:

1) Roll the dice. Move the number of squares indicated. If you throw doubles, you take another turn after your turn is completed. Each time you pass 'Go', collect $200 from the Bank.

2) Buy properties. You may buy any property from the Bank that you land on if it is not already owned.

3) Building. You may only build when you own all properties in a color group. Building must be equal on all properties in a group. You may place a single building on a single property, but you may not place two buildings on one property unless all other properties in the group have one building present (even build rule). Any property can have a total of 4 houses, except Utilities and Railroads, which cannot be developed. To place a hotel on a property, 4 houses must be present on all properties in the group. Houses are removed from the property when a hotel is placed. All buildings are purchased from the Bank.

4) Complete necessary actions. Pay rent as determined by the Title Deed for the property you are on. Pay Income Tax to the Bank ($200 or 10% of your total assets). Draw a Community Chest or Chance card and follow the instructions. These cards are returned to the bottom of the pile when the action is completed.

Answer:	Main procedure monopoly_game : hand out each players initial money.
	  decide which player goes first
	  Repeat
	  call procedure monopoly_move for next player .
	  Decide of the player to be the winner

	Procedure monopoly_move : begin one move . Throw dice . Move the number of spaces on the bord shown on the dice . If the token landed on go to jail , then immediately . Else if the token landed on chance or community chest then draw a card and follow its instructions . Else

	follow the usual rules for the square . End ones move .

Exercise 2: More Pseudocode

Last week you created an IPO Chart for finding the average of 3 numbers. Building on this, write the pseudocode for an application, which would calculate, and print, the average value of 3 numbers entered by the user.

Answer:	Main procedure add numbers : get three numbers add them all Call procedure . Divided Dived the number from "add number" by the amount of numbers in add numbers Get the average number .

Plan the solution to the problem below using your Problem Solving Steps, IPO Chart, and Pseudocode before providing a draft of the code itself in either java, python or C.

Problem:

You are to develop an application that has variables to represent the length and the width of a room in metres, and the price of carpet per metre in euros. Assign appropriate values to the variables. Calculate and print the cost of carpeting the room.

Week 8 – Programming in Different Languages: variables, messages and comments (5%)

Exercise 1: Steps to Solving a Problem

Write down the steps to identify what is the problem you are faced with, what options you have for solving it and finally what the steps to follow to solve the problem.

- **Step 1:** Identify and Understand the Problem

The issue is that we have a room that we want to carpet and we don't know how big it is and we don't know how much carpet it take and we don't know how much it will cot

- **Step 2:** Identify Alternative Ways to Solve the Problem

A way to find out what we need is that we could measure the dimension of the room then we can find the price of carpet by meter then multiply the area of the room by the price of the carpet

- **Step 3:** Choose the Best Approach

the best approach is messuse the Hight and width of the room then multiply the dimensions to find the square meters of the room the find the price of carpet per square meter then find the price to fill the hole room

- **Step 4:** Create a List of Steps for the Approach and Apply them

Measure Hight
Measure width

Calculate area in sq meter
Find price of carpet per sq meter
Calculate the price for the room

- **Step 5:** Evaluate the Solution

A way to improve this would be the automate the measuring the room by being able to a picture of the room and be able to tell the sq demission of the room and then automating the calculation of the price to carpet of the room

Exercise 2: IPO Chart

Input	Process	Output
Hight of room Length of room Price of carpet per sq meter	Calculating the hight by the width of the room Calculate the price per meter sq of carpet	The area of the room in sq. Meters The price to carpet the whole room

Exercise 3: Pseudocode

Answer:
PROGRAM Carpeting:
//INPUT
READ Length;
READ Width;
READ PricePerMetre;
I/PROCESS
Compute Area = Length x room Width;
Compute final cost = Area x carpetPricePer Metre;
I/OUTPUT
PRINT finalCost;
END

Exercise 4: Code

Answer:java script

```
<!DOCTYPE html>
<html>
```

```
<body>
<h1>Code for finding cost of carpeting</h1>
<p id="cost"></p>
<script>
var x = ; // Length
var y=;// Width
var z =x*y; // rArea
var q =;// carpet PerMetre
var p = 2* //final cost
document.getElementById("cost").innerHTML = P:
</script>
cabal
</body>
</html>
```
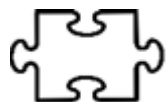
Week 9 – Programming in Different Languages: Relational Operators & If Statements (5%)

Plan the solution to the problem below using your IPO Chart, Flow Chart, and Pseudocode before providing a draft of the Code itself in either java, python or C.

Problem:

You are to develop an application that checks a student mark and calculates what grade they will receive based on that mark. The application should store a mark out of 100 then print the grade based on the following criteria:

- Mark 1 – 39: Fail
- Mark 40 – 49: Pass
- Mark 50 – 69: Merit
- Mark 70 +: Distinction

Exercise 1: IPO Chart

Input	Process	Output
GradeNumber-Numieric=grade	Gradefail-Numieric-if gradeNumber is = to 0-40 gradePassl-Numieric-if gradeNumber is = to 41-50 gardemerit-Numieric-if gradeNumber is = to 51-70 gradedistinctionl-Numieric-if gradeNumber is = to 71-101	Finalgrade-string – tells user if got fail,pass,merit or distinction

Exercise 2: Flow Chart

You can use Draw.io to create your flow chart and then copy and paste it here:

start

user input grade

is grade =1-39 — yes → print fail

no

is grade = 40-49 — Yes → print pass

No

is grade = 50-69 — yes → print merit

no

is grade =70+ — yes → print distinction

end
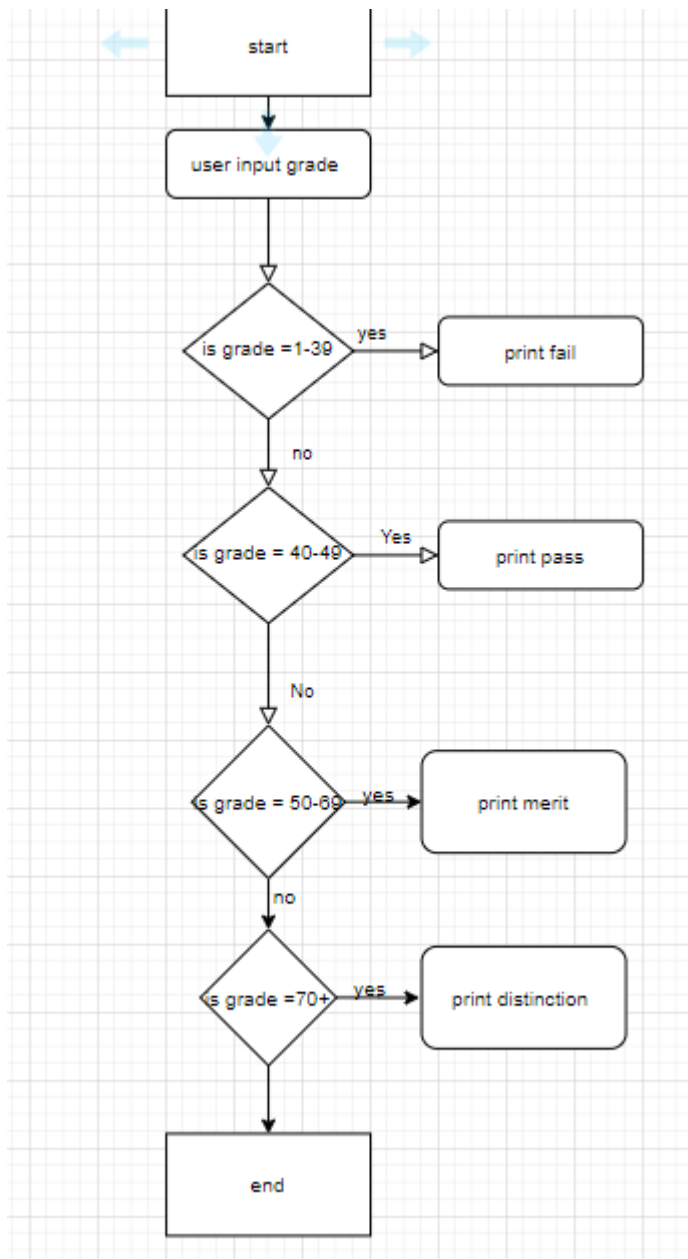
Exercise 3: Pseudocode

Answer: PROGRAM calculating grade
//input
Read Gradenumber
//prosecess
Compute if Gradenumber == gradefail
Compute if Gradenumber == gradepass
Compute if Gradenumber == grademerti
Compute if Gradenumber == gradedistinction

//output
Print finialgrade
END

Exercise 4: Code

Answer: public class Grading Program
public static void main(Stringi args) {
int student Mark=;
char finalGrade
if (studentMark >=70){
finalGrade = 'Distinction;
else if (student Mark >=69){
final Grade = 'Merit';
1
else if (student Mark>-49){
finalGrade = 'Pass;
3
else (student Mark >= 39){
finalGrade = 'Pass';

Week 10 – Programming in Different Languages: Loops (5%)

Plan the solution to the problem below using your IPO Chart, Flow Chart, and Pseudocode before providing a draft of the Code itself in either java, python or C.
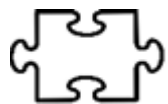
Problem:

You are to develop an application that prints the words for the nursery rhyme "Ten Green Bottles". You should be able to use loops in your solution to reduce the length of your solution.

The first verse of the song is:

Ten green bottles hanging on the wall.
Ten green bottles hanging on the wall.
And if one green bottle, should accidentally fall.
There'll be nine green bottles, hanging on the wall.
Here is a link to the full song on YouTube.

Exercise 1: IPO Chart

Input	Process	Output
Input tenBotties - String = Ten green bottles onWall — String = hanging on the wall	Process tenBotiles + onWall + tenBottles + gnwall + oneBottle + nineBottles + gnvwall	Output songlytics - String = Ten green bottles hanging 'on the wall. Ten green bottles hanging

oneBottle — String = And if one green bottle, should accidentally fall. nineBottles — String = There'll be nine green bottles,		on the wall. And if one green bottle, should accidentally fall. There'll be nine green bottles, hanging on the wall.

 Exercis e 2: Flow Chart

You can use Draw.io to create your flow chart and then copy and paste it here:
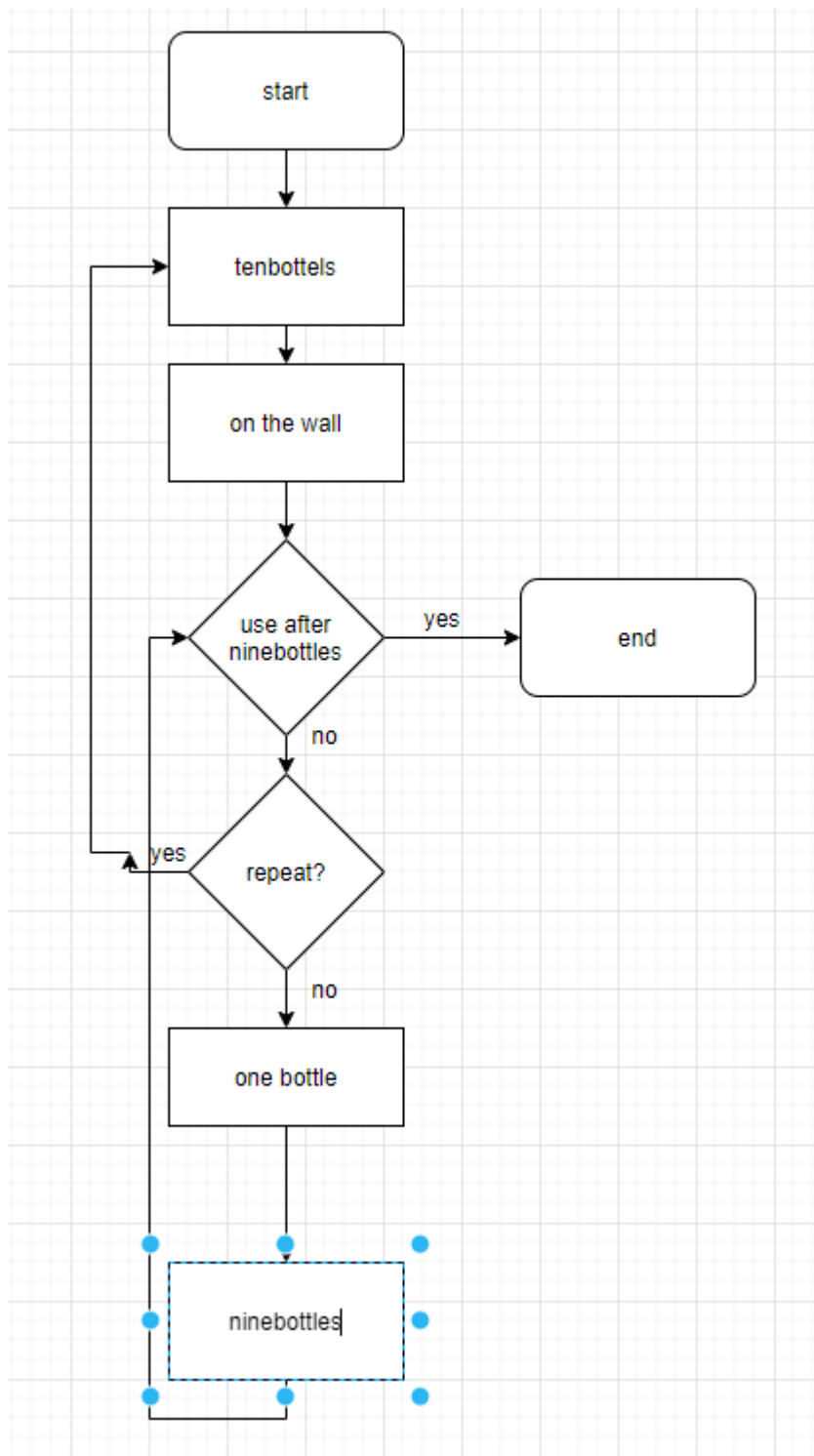
Exercise 3: Pseudocode

Answer:

PROGRAM: GreenBottles
START
PRINT tenBottles;
PRINT onwall;
REPEAT
PRINT tenBottles;
PRINT onwall;
END
PRINT oneBottle;
PRINT nineBottles
PRINT onwall;
END

Exercise 4: Code

Answer: JAVA

```
public class TenGreenBottles{
public static void main(String[] args) {
tenGreenBottles();}
public static void tenGreenBottles(){
for(int tenGreenBottles = 10; tenGreenBottles >0; tenGreenBottles-- X
if(tenGreenBottles > 3){
System.out.println(+tenGreenBottles+" green bottles standing on the wall");
System.out.println(+tenGreenBottles+ " green bottles standing on the wall");
System.out.println("and if one green bottle should accidently fall"),
System.out.println("there'll be " +(tenGreenBottles-1)+" green bottles standing on
the
System.out.println("");}
else if(ten GreenBottles == 2X{
System.out.println(+ten GreenBottles+" green bottles standing on the wall");
System.out.println(+ten GreenBottles+" green bottles standing on the wall");
System.out.println("and if one green bottle should accidently fall");
System.out.println("there'll be " +(ten GreenBottles-1)+" green bottle standing on the
wa
System.out.println("");}
else if(tenGreenBottles == 1){
System.out.println(+tenGreenBottles+ "green bottle standing on the wall");
System.out.println(+tenGreenBottles+ " green bottle standing on the wall");
System.out.println("and if one green bottle should accidently fall");
System.out.println("there'll be no green bottles standing on the wall");
System.out.println(**);
}
}
```

Week 11 - Evaluating Algorithmic Solutions (5%)

Grade Application

The following application accepts an assessment mark from the user and calculates their grade based on that mark as follows:

Mark	Grade
<40	Fail
40 - 49	Pass
50 - 59	Merit 2
60 - 69	Merit 1
>69	Distinction

The java code has been developed for you (See Below for the code)

Review the code and Carry out each of the following tasks:

1. Find each of the 3 bugs in the code and explain how to correct them
2. Identify each of the 3 logic errors in the code and explain how to correct them
3. Identify 10 suitable test cases to test that the application gives the correct output which would have helped to catch the errors you have identified in the code .(Outline the Input and Expected Output)

Input	Expected Output	Actual Output
If(mark40){	pass	fail
Int mark;	Enter number	Fail
Public static void main(string args[])	Accept string arrarys	fail
Scanner keyboard = new scanner (system-m.inti)	Creates a scanner object	Fail
System.out.print("sorry you failed this assiment ")	Prints out a statement	Fail

```
 1   1          import java.util.Scanner;
 2      2          public class Grades{
 3      3              public static void main(String args[]){
 4      4                  int mark;
 5      5
 6      6                  Scanner keyboard = new Scanner(System.in)
 7      7
 8      8                  System.out.println("Please enter your mark");
 9      9
10     10                  mark = keyboard.nextInt();
11     11
12     12                  if(mark>40){
13     13                      System.out.println(Sorry, you
14 failed this assignment");
15     14                  }
16     15                  else if(mark >=40 && <50){
17     16                      System.out.println("You have achieved a pass
18 in this assignment");
19     17                  }
20     18                  else if(mark>=50 && mark < 60){
```

```
   21       19                               System.out.println("You have achieved a
   22   merit 2 in this assignment");
   23       20                      }
   24       21                              else if(mark>=60 || mark<70){
   25       22                                  System.out.println("You have achieved a
   26   merit 1 in this assignment");
   27       23                      }
   28       24                              else if(mark>=70){
           25                                  System.out.println("You have achieved a
           distinction in this assignment");
           26                      }
           27              }
           28
```

Week 12 - Final Project (20%)

Handout Date: 15th December

Project Instructions

For the final project, you will be asked to use all of the Problem Solving and Planning approaches addressed in the module to plan the solution to a given problem and draft some code for that solution in a given language. The problem you must address, and the language you must use, will depend on your student number.

The problem you must address is dependent on the last digit of your student number according to the following table:

Digit	Problem
0, 5	Bins
1, 6	College
2, 7	Floors
3, 8	Holiday
4, 9	Months

The language you must use is dependent on the second last digit of your student number and is outlined in this table:

Digit	Language
0, 1, 2	Java
3, 4, 5	C
6, 7, 8, 9	Python

Problem Descriptions:

Bins

The college residence is introducing a new recycling scheme for students who live on campus. Students are now being instructed to recycle waste where possible using a combination of three coloured bins: Green, Brown and Black.   Each apartment has now been assigned a different collection day for each of the three coloured bins. You have been asked to develop an application that would enable a student to find out which of their bins will be collected on which day.

The application should allow the student to enter the colour of their bin and their apartment number and should then calculate and output the day on which that bin will be collected. Once finished, the

application should ask the user if they would like to run the application again. The table below outlines the collection schedule.

* Hint: When an even number is divided by 2 it leaves no remainder

Bin Colour	Apartment Number	Collection Day
Brown	Odd Numbers	Tuesday
	Even Numbers	Monday
Black	Odd Numbers	Wednesday
	Even Numbers	Tuesday
Green	Odd Numbers	Thursday
	Even Numbers	Wednesday

College

The Students Union is planning a Big Night Out event for all students but unfortunately, they couldn't find a venue big enough to accommodate all courses together and so they have had to book 7 different venues and assign different programmes and years to each venue. They have asked you to develop an application that would enable a student to find out which venue their night out will be in.

The application should allow the student to enter their programme code and their year of study and should then calculate and output the venue where their night out will take place. Once finished, the application should ask the user if they would like to run the application again.The location of each night out is listed in the table below.

Year	Programme	Location
1	HCC	Lagoona
	BAMTB	Lagoona
	BSHC	Harbourmaster
2	HCC	The Workmans Club
	BAMTB	The Workmans Club
	BSHC	Porterhouse
3	HCC	Diceys Beer Garden
	BAMTB	Diceys Beer Garden
	BSHC	Vintage Cocktail Club

Floors

In advance of the arrival of new students to campus, the college has asked you to develop an application that will help them to find the rooms listed on their timetables. All rooms in the college are numbered beginning with a 1, 2, 3, or 4 depending on which floor they are on. For example, room 1.24 is on the first floor, and room 2.24 is on the second floor. You have been asked to develop an application which allows the student to enter the number of the room they are looking for and then calculate and output the floor where that room is located. Once finished, the application should ask the

user if they would like to run the application again.The room numbers and corresponding floors are outlined in the table below.

Rooms	Floor
1.0 – 1.99	First Floor
2.0 – 2.99	Second Floor
3.0 – 3.99	Third Floor
4.0 – 4.99	Fourth Floor

Holiday

Sunshine Tours is offering a special holiday deal to NCI students this year. To help handle some of the pricing enquiries the Students Union has asked you to develop an app that would allow students to check the price per person of their trip. The application should allow the user to enter the season during which they want to travel and the number of people travelling and should then calculate and output the cost per person for the trip. Once finished, the application should ask the user if they would like to run the application again. The cost per person should be calculated according to the following table:

Season	Number of People	Cost Per Person
Winter	1 – 4	300
	5 or More	200
Spring	1 – 4	400
	5 or More	300
Summer	1 – 4	600
	5 or More	500
Autumn	1 – 4	500
	5 or More	400

Months

You have started in a new office job where the accountant needs to be able to quickly check how many days are in a given month. You have been tasked with developing an application which would allow him to enter a month and which would then output the number of days in that month. Once finished, the application should ask the user if they would like to run the application again.The number of days in each month is outlined in the following table:

Month	Number of Days
September, April, June, November	30
January, March, May, July, August, October, December	31
February	28

Project Solution:

Plan the solution to your prescribed problem using the template below. Outline the Problem Solving Steps, IPO Chart, and Pseudocode before providing a draft of the code itself in your prescribed language along with a Test plan for the finished application.

Exercise 1: Steps to Solving a Problem

Write down the steps to identify what is the problem you are faced with, what options you have for solving it and finally what the steps to follow to solve the problem.

- **Step 1:** Identify and Understand the Problem

The problem is that a holiday resort has a deal that can change depending on what season you going and depends on how many people are going and I am tasked to make a app that you can just put the amount of people going and when they are going then I can tell the user how much it will cost

- **Step 2:** Identify Alternative Ways to Solve the Problem

An alternative solution is to ask the user when they plan to go then just show how much it would cost for both the 4 and 5 people for that season

- **Step 3:** Choose the Best Approach

The best approach is just asking how many people are going and when then just telling the user how much it will cost per person then just print that bit to the user .

- **Step 4:** Create a List of Steps for the Approach and Apply them

Enter what moth you want to go
Find the season that moth is in
Enter the number of people are going
Find if they are meeting the requirements of the deal
Find the price of that number of people for that season
Print how much per person

- **Step 5:** Evaluate the Solution

I found that this solution is the best because it make the lowest possibility of user error and it the cleanest way to find the solution

Exercise 2: IPO Chart

Input	Process	Output
Input String=date of visit Int= number of people visiting	Process If date of visit var = (" march, April , may ") = var (spring) If date of visit var=(" June , July august ") =var (summer) If date of visit var= (" September , October , November ") = var (autumn) If date of visit var = (" December , January , February ") = var (winter)	Print (var cost , "per person")

If date var = winter
If people var = >5
Cost = 300

If date var = spring
If people var = >5
Cost = 400

If date var = summer
If people var = >5
Cost = 600

If date var = autumn
If people var = >5
Cost = 500

If date var = winter
If people var = <5
Cost = 200

If date var = spring
If people var = <5
Cost = 300

If date var = summer
If people var = <5
Cost = 500

If date var = autumn
If people var = <5
Cost = 400

Exercise 3: Pseudocode

Answer:
 print ("please add month of visit")
Var = String=date of visit
Print (" please add number of people visiting")
Var = Int= number of people visiting

if date of visit var = (" march, April , may ") = var (spring)
If date of visit var=(" June , July august ") =var (summer)

If date of visit var= (" September , October , November ") = var (autumn)
If date of visit var = (" December , January , February ") = var (winter)

If date var = winter
If people var = >5
Cost = 300

 If date var = spring
If people var = >5
Cost = 400

 If date var = summer
If people var = >5
Cost = 600

 If date var = autumn
If people var = >5
Cost = 500

If date var = winter
If people var = <5
Cost = 200

 If date var = spring
If people var = <5
Cost = 300

 If date var = summer
If people var = <5
Cost = 500

If date var = autumn
If people var = <5
Cost = 400

Print ("var cost ", " ", "per person")

Exer
cise
4:
Code

Answer:	def holiday_claculator():

```python
date = input("please add month of visit? ")

people = input("please add number of people
 visiting? ")
if (date == "March","April","may") season_S
pring = True
if (date =="June","July","august") season_s
ummer = True
if (date =="September","October","November"
)season_autumn = True
if (date =="December","January","February")
 season_winter = True
if (season_winter is True and (people)>5 is
 True cost =300
if (season_spring is True and (people)>5 is
 True cost =400
if (season_summer is True and (people)>5 is
 True cost =600
if (season_autumn is True and (people)>5 is
 True cost =500
if (season_winter is True and (people)<5 is
 True cost =200
if (season_spring is True and (people)<5 is
 True cost =300
if season_summer is True and (people)<5 is
True cost =500
if season_autumn is True and (people)<5 is
True cost =400
x=cost + "per person"
print(x)
holiday_claculator()
print("do you want to resart type y for yes
 and n for no ")
if ( restart == "y"):
holiday_claculator()
```

```
elsif (restart =="n"):
print ("goodbye")
exit()
```

Identify a series of Test Cases that could be used to test your code once fully implemented. You need only complete the first 4 columns of the table.

Test #	Description	Test Data	Expected Result	Actual Result	Pass/Fail	Comments
Enter march and 4 people	It should be in spring and should cost 500 per person	Season_spring Cost = 500	season_spring Cost = 500	season_spring Cost = 500	The app passed	The code worked susscfuly