

DEAKIN UNIVERSITY

INTRODUCTION TO PROGRAMMING

ONTRACK SUBMISSION

Test 2

*Submitted By:*  
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2024/04/23 11:30

*Tutor:*  
Prathamesh SHELAR

Outcome	Weight
Programming Concepts	◆◆◆◆◇
Programming Process	◆◆◆◇◇
Coding	◆◆◆◇◇
Professional Characteristics	◆◆◆◆◇

An overall good exercise to all areas of programming, as well as reflecting upon my progress so far.

April 23, 2024



Daniel McAllister

S224477774

Test 2 Reflections:

I have been progressing fairly well so far. I have had some problems with some tasks here and there, but I have been able to persevere eventually. I have been keeping up to date with the distinction timeline and honestly all is going well. At this point, I am optimistic that I will be able to achieve my objective of getting a distinction without too much strife. Yes, it will continue to be challenging at parts, but nothing that I cannot overcome.

At this point, I see no reason to change my target grade from distinction.

# Learning Plan

## Personal Learning Goals

Describe your current knowledge of this area and what you think programming is.

My current knowledge of programming is still relatively limited, but I am beginning to gain confidence in my abilities, especially independently to produce my own solutions to coding challenges. I would say I am now just a medium beginner, rather than an absolute beginner. I still think programming is just explaining to a computer what to do in excruciating detail.

What do you want to learn, and how will this help you in your future career?

I want to continue learning even more. I would ideally like to become quite comfortable in my programming abilities to where I can see a problem, immediately come up with a theoretical solution, and then relatively quickly convert the theoretical solution into a practical solution. This will help me with any future programming problems I encounter, and while I am still not sure my exact desired career, I know I want to work with computers, and having a solid understanding of programming will never not be useful.

What is your target grade and why are you aiming for this grade?

I am still aiming for a distinction, as I believe I am on target in terms of time and ability. I have been regularly submitting my tasks on time and have not yet been overdue on anything yet, so as such, I see no reason as to not continue aiming for a distinction.

What do you need to demonstrate to achieve this grade? Relate this to the meaning of each grade?

To achieve this I have to complete all of the pass, credit and distinction tasks. Distinction means that I will have a fairly comprehensive understanding of programming. With the ability to understand and construct programs independently with a good overall understanding.

I understand to achieve this grade I will need to stick with the following timeline:

Task		Distinction
P1	Learning Plan	1
P2	Building and Running	1
P3	Sequence and Data	1
P4	Control Flow	3
C1	Project 1	3
P5	<b>Test 1 (run in week 5)</b>	4
P6	C / C++	4
P7	Structuring code	4
P8	Structuring data	5
P9	Indirect access	6
D2	Custom Program Plan	6
P10	Working with multiples	7
P11	<b>Test 2 (run in week 7, 9, and 11)</b>	7
C2	Project 2	8
C3	Another Language - Python	9
D3	Deep Dive Memory	9
C4	Classes and Objects	10
D4	Custom Program Implementation	11
D1	Active Collaborator	11
H1	Custom Program HD Report	-
H2	Something Awesome	-
P12	Learning Summary	11

Only keep the column for your target grade – delete the others.

## I understand how this unit works.

I, *Daniel John McAllister*, 224477774, confirm that I have read and understood how this unit works: I understand that:

- I will receive a grade in accordance with the tasks I complete.
- I can change my target grade at any time during the trimester, up until I submit my portfolio.
- I am responsible for providing evidence of my work to satisfy the requirements in each module and task completed.
- I acknowledge that I need to sit and pass Test 1 and Test 2, and that I need to attend the test on campus or online as indicated in the Learning Plan task sheet.
- It is not possible to fail a module (except by not submitting it), but that updates may be requested to achieve the required standard.
- Following my initial submission, I will work with my tutor and the teaching team to update and complete my submissions until they demonstrate I have achieved the learning objectives of the module.
- I understand I will only receive feedback on my task submissions up until the task's due date in OnTrack. After this point, I will need to ensure it is up to the required standard within my portfolio.
- I have reviewed the timeline in the Learning Plan task sheet, and below I have listed the dates I aim to submit my work for feedback.
- I commit to submit the initial submission of my work before the deadlines listed in the table above. I acknowledge that these deadlines can be modified by me, in agreement with my tutor, when the necessity occurs, and that I am responsible for requesting these modifications as soon as I become aware of the need to do so, and no later than the deadline to be modified.

Name: Daniel McAllister

Student ID: 224477774

Date: 23/04/2024

Signature:



# SIT102 Test 2 - 2024 T1

## Assessment Details

- **Assessment:** Test 2 - 2024 T1
- **Unit Codes:** SIT102
- **Duration:** 90 minutes



Student Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Select your tutorial from the following list:

- |  |  |
|--|--|
| <input type="radio"/> Tue 09:00 Andrew | <input type="radio"/> Wed 12:00 Lashi  |
| <input type="radio"/> Tue 12:00 Lashi  | <input type="radio"/> Fri 09:00 Aaron  |
| <input type="radio"/> Tue 18:00 Aaron  | <input type="radio"/> Fri 14:00 Olivia |

### Instructions to Candidates

- Please answer all questions in this booklet.
- You have until 90 minutes from the start of the seminar to complete the test. If you arrive late, you will not be given extra time.
- Remember to watch your time.
- This booklet must be handed in at the conclusion of the test.

### Official Use

- ☐ Complete    ☐ Fix and Resubmit    ☐ Redo

The following struct and procedure are defined.

```
const int SIZE = 5;
typedef struct awesome_data_struct {
    int    data [SIZE];
    char   type;
} awesome_data;

void
who_am_i ( const awesome_data &str1, awesome_data &str2 )
{
    int i;

    for ( i = 0; i < SIZE; i++ ) {
        str2.data [i] = str1.data [i];
    }

    str2.type = str1.type;

    return;
}
```

1. Hand execute the code below using this procedure.

```
// Initialise d1.data with {3,2,7,9,8} and d1.type with 'c'.
// Initialise d2.data with {0,0,0,0,0} and d2.type with 'a'.
awesome_data d1 = { {3, 2, 7, 9, 8}, 'c'};
awesome_data d2 = { {0, 0, 0, 0, 0}, 'a'};

who_am_i ( d1, d2);
```

2. Hand execute the code below using this procedure.

```
// Initialise d1.data with {-1,-1,-1,-1,-1} and d1.type with 'x'.
// Initialise d2.data with {5,-4,3,2,8} and d1.type with 'a'.
awesome_data d1 = { {-1, -1, -1, -1, -1}, 'x'};
awesome_data d2 = { {5, -4, 3, 2, 8}, 'a'};

who_am_i ( d2, d1);
```

3. Give a single short sentence to describe what the function `who_am_i` is doing, and provide a more appropriate name for it.



You are designing a game and you need to implement a data type to capture the notion of an enemy. This data type should contain the following:

- integers representing the  $x$  and  $y$  position of the enemy;
- a string to denote their name;
- an integer array of length 10, denoting their weapons arsenal where each element in the array represents the number of this type of weapon that is held by the enemy.

4. Write a data structure named `enemy` to encode the information specified for an enemy.

5. Implement the procedure below, which copies the given array of the weapons arsenal as the first parameter to the instance of `enemy` in the second parameter as the weapons arsenal.

```
void copy_enemy_weapon ( int weapon [], enemy &e )
```

6. Define `MAX_ENEMIES` number of enemies using the data structure you've implemented inside the main function below on the first dotted line. Set the quantity of the 5-th type of weapon for the 121-st enemy to 11 in the second dotted line.

```
int main ( void )
{
    const int MAX_ENEMIES = 200;

    -----;

    -----;

    return 0;
}
```