

Assignment 2

Examples

Last updated: **Sunday 5th November 4:36pm**

Most recent changes are shown in **red** ... older changes are shown in **brown**.

[\[Specification\]](#) [\[Database\]](#) [\[SQL](#)

[Schema\]](#) [\[Grades+Rules\]](#) [\[Examples\]](#) [\[Testing\]](#) [\[Submitting\]](#) [\[Fixes+Updates\]](#)

Introduction

This document contains examples of output from the various scripts that you are required to develop.

International Students

```
$ python3 q1.py
Term  #Locl  #Intl  Proportion
19T1   160    370    0.4
19T2   150    360    0.4
19T3   163    722    0.2
20T0    17     77    0.2
20T1   334    620    0.5
20T2   351    903    0.4
20T3   365   1038    0.4
21T0    57    175    0.3
21T1   620   1112    0.6
21T2   601   1017    0.6
21T3   619   1210    0.5
22T0    46    185    0.2
22T1   823   1339    0.6
22T2   773   1230    0.6
22T3   796   1414    0.6
23T0    65    210    0.3
23T1  1028   1472    0.7
23T2   952   1431    0.7
23T3   968   1980    0.5
```

Course Satifaction

```
$ python3 q2.py COMP1521
COMP1521 Computer Systems Fundamentals
Term  Satis  #resp  #stu  Convenor
19T2   96      5      10   Mohamed Eaton
19T3   96      3       6   Vidan Nilsson
20T2   90     16     32   Vidan Nilsson
20T3   95     12     25   Vidan Nilsson
```

21T2	89	18	37	Lauren Zou
21T3	93	17	34	Vidan Nilsson
22T1	97	6	13	Vidan Nilsson
22T2	94	13	26	Lauren Zou
22T3	92	21	42	Vidan Nilsson
23T1	88	16	33	Vidan Nilsson
23T2	95	21	43	Dave Bhusal
23T3	97	31	62	Vidan Nilsson

\$ python3 q2.py ACCT1511

ACCT1511 Accounting and Financial Management 1B

Term	Satis	#resp	#stu	Convenor
19T2	?	?	2	Laura Koczanowski
20T0	?	?	0	Sonakshi Johnstone
20T1	91	1	3	Laura Koczanowski
20T2	82	3	7	Sonakshi Johnstone
20T3	90	2	4	Othman Weakley
21T1	?	?	1	Othman Weakley
21T2	82	2	4	Geoffrey McCowan

\$ python3 q2.py COMP2521

COMP2521 Data Structures and Algorithms

Term	Satis	#resp	#stu	Convenor
19T2	94	4	8	Dave Foscett
19T3	?	?	2	Dave Foscett
20T1	96	4	8	Dave Foscett
20T2	88	7	15	Dave Bhusal
20T3	97	6	13	Dave Foscett
21T1	92	3	7	Dave Foscett
21T2	97	11	23	Yasmin Lannigan
21T3	91	13	27	Dave Foscett
22T1	84	10	20	Dave Foscett
22T2	83	14	28	Edward Mai
22T3	87	10	20	Dave Foscett
23T0	88	4	8	Dave Foscett
23T1	87	16	32	Latoya Basa
23T2	91	19	39	Flora Ackerman
23T3	93	22	44	Dave Bhusal

\$ python3 q2.py COMP1010

COMP1010 The Art of Computing

Term	Satis	#resp	#stu	Convenor
20T3	?	?	0	Matthew Govendir
21T1	?	?	0	Matthew Govendir
21T2	?	?	2	Flora Ackerman
21T3	?	?	1	Flora Ackerman
22T1	?	?	2	Flora Ackerman
22T2	94	1	3	Flora Ackerman
22T3	?	?	2	Flora Ackerman
23T0	?	?	1	Flora Ackerman
23T1	?	?	2	Flora Ackerman

Requirements

\$ python3 q3.py 3707

3707 Engineering (Honours)

Academic Requirements:

Total UOC at least 192 UOC

1 stream from BE(Hons) Streams

- AEROAH None
- BINFAH Bioinformatics Engineering
- CEICAH Chemical Engineering
- CEICDH Chemical Product Engineering
- COMPBH Computer Engineering
- CVENAH Civil Engineering
- CVENBH None
- ELECAH Electrical Engineering
- ELECCH None
- GMATDH None
- MANFBH None
- MINEAH Mining Engineering
- MTRNAH Mechatronic Engineering
- PETRAH None
- SENGHAH Software Engineering
- SOLAAH Photovoltaics and Solar Energy
- SOLABH None
- TELEAH Telecommunications

all courses from Industrial Training

- ENGG4999 Industrial Training

12 UOC of General Education

\$ python3 q3.py SENGHAH

SENGHAH Software Engineering

Academic Requirements:

Total UOC at least 168 UOC

all courses from Foundational Computing

- COMP1511 Programming Fundamentals
- COMP1521 Computer Systems Fundamentals
- COMP1531 Software Engineering Fundamentals
- COMP2511 Object-Oriented Design and Programming
- COMP2521 Data Structures and Algorithms

all courses from SENGHAH Maths

- MATH1081 Discrete Mathematics
- MATH1131 Mathematics 1A
 - or MATH1141 Higher Mathematics 1A
- MATH1231 Mathematics 1B
 - or MATH1241 Higher Mathematics 1B
- MATH2400 Finite Mathematics
- MATH2859 Probability, Statistics and Information

all courses from SENGHAH Workshops/Design

- DESN1000 Introduction to Engineering Design and Innovation
 - or ENGG1000 Introduction to Engineering Design and Innovation

- DESN2000 Engineering Design and Professional Practice
- SENG2011 Workshop on Reasoning about Programs
- SENG2021 Requirements and Design Workshop
- SENG3011 Software Engineering Workshop 3

all courses from SENGAH Advanced Core

- COMP2041 Software Construction: Techniques and Tools
- COMP3141 Software System Design and Implementation
- COMP3311 Database Systems
- COMP3331 Computer Networks and Applications
- SENG4920 Ethics and Management
- COMP4951 Research Thesis A
- COMP4952 Research Thesis B
- COMP4953 Research Thesis C

at least 36 UOC courses from SENGAH Discipline Electives

- ENGG2600, ENGG3060, ENGG3600, ENGG4600, COMP3###, COMP4###, COMP6
- 6 UOC of Free Electives

\$ python3 q3.py 3778

3778 Computer Science

Academic Requirements:

Total UOC at least 144 UOC

1 stream from Comp Sci Majors

- COMPA1 Computer Science
- COMPD1 Computer Science (Database Systems)
- COMPE1 e-Commerce
- COMPI1 Computer Science (Artificial Intelligence)
- COMPJ1 Computer Science (Programming Languages)
- COMPN1 Computer Science (Computer Networks)
- COMPS1 Computer Science (Embedded Systems)
- COMPY1 Computer Science (Security Engineering)

all courses from Foundational Computing

- COMP1511 Programming Fundamentals
- COMP1521 Computer Systems Fundamentals
- COMP1531 Software Engineering Fundamentals
- COMP2511 Object-Oriented Design and Programming
- COMP2521 Data Structures and Algorithms

all courses from Comp Sci Maths

- MATH1081 Discrete Mathematics
- MATH1131 Mathematics 1A
or MATH1141 Higher Mathematics 1A
- MATH1231 Mathematics 1B
or MATH1241 Higher Mathematics 1B

all courses from Comp Sci Advanced Core

- COMP3121 Algorithms and Programming Techniques
or COMP3821 Extended Algorithms and Programming Techniques
- COMP3900 Computer Science Project
- COMP4920 Management and Ethics

12 UOC of General Education

\$ python3 q3.py COMPD1

COMPD1 Computer Science (Database Systems)

Academic Requirements:

Total UOC at least 96 UOC

```
all courses from COMPD1 Core
- COMP3311 Database Systems
18 UOC courses from COMPD1 Electives
- COMP6714,COMP9312,COMP9313,COMP9315,COMP9318,COMP9319
at least 6 UOC courses from COMPD1 Computing Electives
- ENGG2600,ENG3600,ENGG4600,COMP3###,COMP4###,COMP6###,COMP9#
at least 36 UOC of Free Electives
(yes, yes, COMP2041 is missing from the Computing Electives)
(and, yes, the UOC doesn't add up to 96; the rest comes from 3778)

$ python3 q3.py 8543
8543 Information Technology
Academic Requirements:
Total UOC at least 96 UOC
1 stream from MIT Streams
- COMPAS Artificial Intelligence
- COMPBS Bioinformatics
- COMPCS Information Technology
- COMPDS Database Systems
- COMPES e-Commerce Systems
- COMPIS Internetworking
- COMPSS Data Science and Engineering
all courses from Project Management
- GS0E9820 Engineering Project Management
all courses from PG Core Courses
- COMP9021 Principles of Programming
- COMP9024 Data Structures and Algorithms
- COMP9311 Database Systems
- COMP9331 Computer Networks and Applications
all courses from MIT Project Courses
- COMP9900 Information Technology Project
  or COMP9991 Research Project A
36 UOC courses from ADK Courses
- COMP4121,COMP4161,COMP4418,COMP6714,COMP9153,COMP9242,COMP9

$ python3 q3.py ACCTAH
ACCTAH Accounting
Academic Requirements:
Total UOC at least 48 UOC
(has no requirements defined except Total UOC)

$ python3 q3.py AAAAAA
Invalid stream code AAAAAA

$ python3 q3.py 3333
Invalid program code 3333

$ python3 q3.py 12345
Invalid code
```

Note: the line starting with DEBUG is there primarily to help with your debugging.

If you add it to your code, comment it out before submitting.

\$ python3 q4.py 3892140

3892140 Burn, Farid

8338 ELECIS Engineering Science

GS0E9830 20T2 Economic Decision Analysis in E 57 PS 6uoc

ELEC9713 21T1 Industrial and Commercial Power 42 FL fail

UOC = 6, WAM = 49.5

DEBUG: Weighted_sum:594 UOC_for_WAM:12, UOC_passed:6

\$ python3 q4.py 3891785

891785 Ahmad, Callum James

8404 FINSCS Commerce

FINS5568 19T3 Capstone - Portfolio Management 68 CR 6uoc

UOC = 6, WAM = 68.0

DEBUG: Weighted_sum:408 UOC_for_WAM:6, UOC_passed:6

\$ python3 q4.py 3891853

3891853 Spargo, Osuki Dilara

8404 FINSCS Commerce

MGMT5050 20T1 Professional Skills and Ethics 88 HD 6uoc

ACCT5906 20T2 Financial Literacy for Business 59 PS 6uoc

FINS5512 20T2 Financial Markets and Instituti 57 PS 6uoc

ACCT5930 21T1 Financial Accounting - PW **unrs**

UOC = 18, WAM = 68.0

DEBUG: Weighted_sum:1224 UOC_for_WAM:18, UOC_passed:18

\$ python3 q4.py 2891269

2891269 Pathmanandavel, Patronella

8338 CVENRT Engineering Science

CVEN9701 19T1 Engineering Economics and Finan 89 HD 6uoc

CVEN9521 19T2 Slope Instability and Stabilisa 93 HD 6uoc

CVEN9512 20T1 Geomechanics - SY 6uoc

CVEN9630 20T2 Groundwater Hydrology and Resou 87 HD 6uoc

GS0E9011 20T3 Engineering Postgraduate Course 93 HD 6uoc

CVEN9531 21T2 Unsaturated Soil Mechanics 97 HD 6uoc

CVEN9513 21T3 Advanced Foundation Engineering 78 DN 6uoc

CVEN9522 22T3 Rock Engineering 90 HD 6uoc

UOC = 48, WAM = 89.6

DEBUG: Weighted_sum:3762 UOC_for_WAM:42, UOC_passed:48

\$ python3 q4.py 5893146

5893146 Aung, Timothy Russell

3778 COMPA1 Computer Science

ACCT1501 20T1 Accounting and Financial Manage 93 HD 6uoc

COMP1511 20T1 Programming Fundamentals - SY 6uoc

MATH1141 20T1 Higher Mathematics 1A - SY 6uoc

COMP1521 20T2 Computer Systems Fundamentals 55 UF fail

ECON1101 20T2 Microeconomics 1 85 HD 6uoc

MATH1231	20T2	Mathematics 1B	74	CR	6uoc
COMP2521	20T3	Data Structures and Algorithms	86	HD	6uoc
MATH1081	20T3	Discrete Mathematics	79	DN	6uoc
COMP3311	21T1	Database Systems	88	HD	6uoc
ECON1102	21T1	Macroeconomics 1	68	CR	6uoc
MGMT1001	21T1	Managing Organisations and Peop	76	DN	6uoc
COMP1521	21T2	Computer Systems Fundamentals	85	HD	6uoc
PSYC1001	21T2	Psychology 1A	71	CR	6uoc
COMP3331	21T3	Computer Networks and Applicati	64	PS	6uoc
COMP1531	22T1	Software Engineering Fundamenta	92	HD	6uoc
COMP3121	22T1	Algorithms and Programming Tech	69	CR	6uoc
COMP3411	22T1	Artificial Intelligence	72	CR	6uoc
ARTS1270	22T2	Global History: Exploring the F	-	AW	unrs
COMP2511	22T2	Object-Oriented Design and Prog	68	CR	6uoc
COMP3421	22T3	Computer Graphics	65	CR	6uoc
COMP4920	22T3	Management and Ethics	84	DN	6uoc
COMP3231	23T1	Operating Systems	66	CR	6uoc
COMP6080	23T1	Web Front-end Programming	76	DN	6uoc
DDES1110	23T1	3D Visualisation 1 - 3D Virtual	67	CR	6uoc
COMP3900	23T2	Computer Science Project	97	HD	6uoc
COMP9313	23T2	Big Data Management	80	DN	6uoc

UOC = 144, WAM = 76.5

DEBUG: Weighted_sum:10560, UOC_for_WAM:138, UOC_passed:144

\$ python3 q4.py 5812345

Invalid student id 5812345

\$ python3 q4.py 1234567

Invalid student ID 1234567

Progression Checks

Note that you won't be able to get the answers below using the supplied database. Some of the streams have an incorrect Total UOC value, caused by me moving some requirements into the program and forgetting to change the stream Total UOC accordingly. To "fix" the database, you'll need to apply the following updates:

```
update requirements set min_req = 66 where id=318; -- fixes U
update requirements set min_req = 66 where id=322; -- fixes U
```

\$ python3 q5.py 5893146

5893146 Aung, Timothy Russell

3778 COMPA1 Computer Science

ACCT1501	20T1	Accounting and Financial Manage	93	HD	6uoc
COMP1511	20T1	Programming Fundamentals	-	SY	6uoc
MATH1141	20T1	Higher Mathematics 1A	-	SY	6uoc
COMP1521	20T2	Computer Systems Fundamentals	55	UF	fail

ECON1101	20T2	Microeconomics 1	85	HD	6uoc
MATH1231	20T2	Mathematics 1B	74	CR	6uoc
COMP2521	20T3	Data Structures and Algorithms	86	HD	6uoc
MATH1081	20T3	Discrete Mathematics	79	DN	6uoc
COMP3311	21T1	Database Systems	88	HD	6uoc
ECON1102	21T1	Macroeconomics 1	68	CR	6uoc
MGMT1001	21T1	Managing Organisations and Peop	76	DN	6uoc
COMP1521	21T2	Computer Systems Fundamentals	85	HD	6uoc
PSYC1001	21T2	Psychology 1A	71	CR	6uoc
COMP3331	21T3	Computer Networks and Applicati	64	PS	6uoc
COMP1531	22T1	Software Engineering Fundamenta	92	HD	6uoc
COMP3121	22T1	Algorithms and Programming Tech	69	CR	6uoc
COMP3411	22T1	Artificial Intelligence	72	CR	6uoc
ARTS1270	22T2	Global History: Exploring the F	-	AW	unrs
COMP2511	22T2	Object-Oriented Design and Prog	68	CR	6uoc
COMP3421	22T3	Computer Graphics	65	CR	6uoc
COMP4920	22T3	Management and Ethics	84	DN	6uoc
COMP3231	23T1	Operating Systems	66	CR	6uoc
COMP6080	23T1	Web Front-end Programming	76	DN	6uoc
DDES1110	23T1	3D Visualisation 1 - 3D Virtual	67	CR	6uoc
COMP3900	23T2	Computer Science Project	97	HD	6uoc
COMP9313	23T2	Big Data Management	80	DN	6uoc

UOC = 144, WAM = 76.5

Eligible to graduate

The later COMP courses ended up as COMPA1 Free Electives because one of the COMPA1 Computing Electives has sufficient courses, we stop adding the requirement in the hopes of filling one of the other requirements. If we do this, the COMPA1 Computing Electives would have ended up with 48 COMPA1 Free Electives would not have enough UOC to meet the minimum though the student has taken enough courses to graduate.

To some extent, this is a consequence of using a depth-first (greedy) search of the space of possible course→requirement allocation.

\$ python3 q5.py 5893146 3778 COMPA1

5893146 Aung, Timothy Russell

3778 COMPA1 Computer Science

... same output as above ...

\$ python3 q5.py 5893146 3778 COMPD1

5893146 Aung, Timothy Russell

3778 COMPD1 Computer Science

ACCT1501	20T1	Accounting and Financial Manage	93	HD	6uoc
COMP1511	20T1	Programming Fundamentals	-	SY	6uoc
MATH1141	20T1	Higher Mathematics 1A	-	SY	6uoc
COMP1521	20T2	Computer Systems Fundamentals	55	UF	fail
ECON1101	20T2	Microeconomics 1	85	HD	6uoc
MATH1231	20T2	Mathematics 1B	74	CR	6uoc
COMP2521	20T3	Data Structures and Algorithms	86	HD	6uoc
MATH1081	20T3	Discrete Mathematics	79	DN	6uoc
COMP3311	21T1	Database Systems	88	HD	6uoc
ECON1102	21T1	Macroeconomics 1	68	CR	6uoc
MGMT1001	21T1	Managing Organisations and Peop	76	DN	6uoc

COMP1521	21T2	Computer Systems Fundamentals	85	HD	6uoc
PSYC1001	21T2	Psychology 1A	71	CR	6uoc
COMP3331	21T3	Computer Networks and Applicati	64	PS	6uoc
COMP1531	22T1	Software Engineering Fundamenta	92	HD	6uoc
COMP3121	22T1	Algorithms and Programming Tech	69	CR	6uoc
COMP3411	22T1	Artificial Intelligence	72	CR	6uoc
ARTS1270	22T2	Global History: Exploring the F	-	AW	unrs
COMP2511	22T2	Object-Oriented Design and Prog	68	CR	6uoc
COMP3421	22T3	Computer Graphics	65	CR	6uoc
COMP4920	22T3	Management and Ethics	84	DN	6uoc
COMP3231	23T1	Operating Systems	66	CR	6uoc
COMP6080	23T1	Web Front-end Programming	76	DN	0uoc
DDES1110	23T1	3D Visualisation 1 - 3D Virtual	67	CR	0uoc
COMP3900	23T2	Computer Science Project	97	HD	6uoc
COMP9313	23T2	Big Data Management	80	DN	6uoc

UOC = 132, WAM = 76.5

Need 12 more UOC for COMPD1 Electives

The reason this doesn't work for graduation is that the COMPD1 requirements are more restrictive than the COMPA1 requirements. COMP6080 does not fit the COMPD1 Electives requirement, and all the other requirements are "full". COMP9313 is explicitly mentioned in the COMPD1 Electives list.

\$ python3 q5.py 5892943

5892943 Zhou, Bingqi

3778 COMPA1 Computer Science

COMP1511	21T1	Programming Fundamentals	73	CR	6uoc
MATH1081	21T1	Discrete Mathematics	67	CR	6uoc
MATH1131	21T1	Mathematics 1A	69	CR	6uoc
COMP1521	21T2	Computer Systems Fundamentals	77	DN	6uoc
COMP2521	21T2	Data Structures and Algorithms	58	PS	6uoc
FINS1613	21T3	Business Finance	59	PS	6uoc
MATH1231	21T3	Mathematics 1B	61	PS	6uoc
COMP1531	22T1	Software Engineering Fundamenta	85	HD	6uoc
COMP3311	22T1	Database Systems	34	FL	fail
FINS2624	22T1	Portfolio Management	51	PS	6uoc
COMP2041	22T2	Software Construction: Techniqu	50	PS	6uoc
DART1110	22T2	Drawing 1: Foundations	74	CR	6uoc
BABS1111	22T3	Big Fat Myths	76	DN	6uoc
FINS3633	22T3	Real Estate Finance	84	DN	6uoc
INFS2602	22T3	Managing Information Systems	67	CR	6uoc
FINS2643	23T0	Wealth Management	67	CR	6uoc
PHYS1160	23T0	Introduction to Astronomy	61	PS	0uoc
COMP2511	23T1	Object-Oriented Design and Prog	-	NC	unrs
COMP3311	23T1	Database Systems	56	PS	6uoc
COMP3411	23T1	Artificial Intelligence	63	PS	6uoc
COMP3331	23T2	Computer Networks and Applicati	69	CR	6uoc
COMP3900	23T2	Computer Science Project	92	HD	6uoc
COMP3121	23T3	Algorithms and Programming Tech	-	-	
COMP9444	23T3	Neural Networks and Deep Learni	-	-	

UOC = 114, WAM = 66.3

Need 12 more UOC for COMPA1 Computing Electives

Need 6 more UOC for Foundational Computing

- COMP2511 Object-Oriented Design and Programming

Need 12 more UOC for Comp Sci Advanced Core

- COMP3121 Algorithms and Programming Techniques

- or COMP3821 Extended Algorithms and Programming Techniques

- COMP4920 Management and Ethics

COMP2041 is not in the COMPA1 Computing Electives list, so counts as a Free Elective.

By the time PHYS1160 was considered, the COMPA1 Free Electives bucket was full; so PHYS1160 can't count towards the degree.

COMP2511 was not resolved, so it counts for 0 UOC.

We don't assume that students will pass courses currently being studied (e.g. COMP3121)

\$ python3 q5.py zID ProgramCode StreamCode

... Coming Soon ...