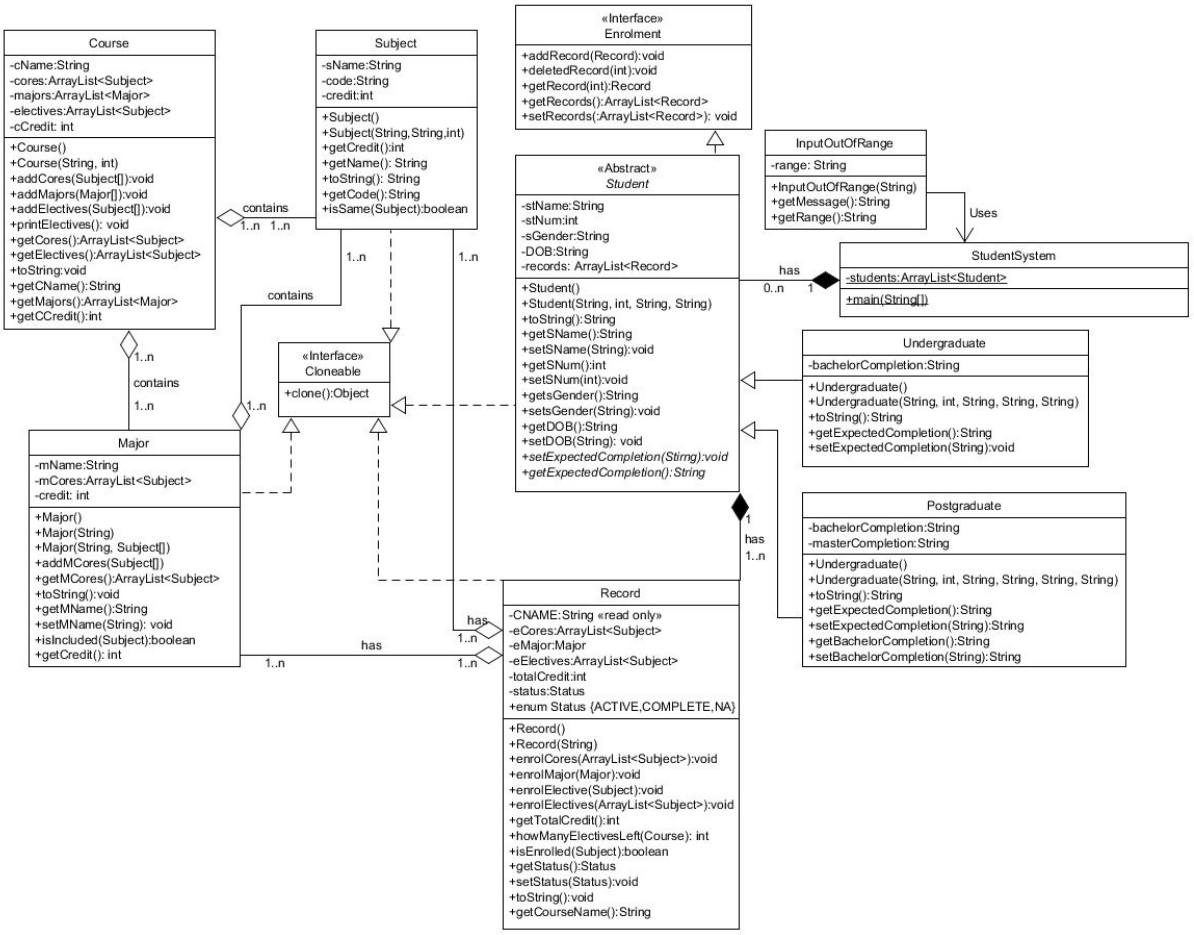
SEAN OVERTON
SN: 6421490
TASK 2:
UML DIAGRAM:



COMPILATION AND TESTING SCREENSHOTS:
FIRST TEST WITH GIVEN INPUTS FROM ASSIGNMENT GUIDELINES:

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C:\Users\Sean\Documents\CSI121 OOP\ass2>javac StudentSystem.java

C:\Users\Sean\Documents\CSI121 OOP\ass2>java -ea StudentSystem

(Enrol first student to Bachelor of Computer Science Course)

Welcome to enrol into Bachelor of Computer Science.

The Course structure is as follows:
----------------------------------------
Course: Bachelor of Computer Science
Cores:
CSIT111 (Programming Fundamentals, 6pt)
CSIT113 (Problem solving, 6pt)
CSIT114 (System Analysis, 6pt)
CSIT115 (Data Management and Security, 6pt)
CSIT121 (Object Oriented Design and Programming, 6pt)
CSIT127 (Networks and Communications, 6pt)
CSIT128 (Introduction to Web Technology, 6pt)
CSCI235 (Database Systems, 6pt)
CSCI251 (Advanced Programming, 6pt)
CSIT214 (IT Project Management, 6pt)
MATH221 (Mathematics for Computer Science, 6pt)
CSCI203 (Data Structures and Algorithms, 6pt)
CSIT226 (Human Computer Interaction, 6pt)
CSIT314 (Software Development Methodologies, 6pt)
CSIT321 (Project, 12pt)

Majors:
Big Data
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)

Cyber Security
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)

Digital System Security
CSCI361 (Cryptography and Secure Applications, 6pt)
CSCI368 (Network Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI376 (Multicore and GPU Programming, 6pt)

Software Engineering
CSCI334 (Software Design, 6pt)
ISIT219 (Knowledge and Information Engineering, 6pt)
CSCI318 (Software Engineering Practices and Principles, 6pt)
ISIT315 (Semantic Web, 6pt)

Game and Mobile Development
CSCI236 (3D Modelling and Animation, 6pt)
CSCI336 (Interactive Computer Graphics, 6pt)
CSCI356 (Game Engine Essentials, 6pt)
CSCI366 (Mobile Multimedia, 6pt)
CSCI376 (Multicore and GPU Programming, 6pt)
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Electives:
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)
CSCI361 (Cryptography and Secure Applications, 6pt)
CSCI368 (Network Security, 6pt)
CSCI376 (Multicore and GPU Programming, 6pt)
CSCI236 (3D Modelling and Animation, 6pt)
CSCI336 (Interactive Computer Graphics, 6pt)
CSCI356 (Game Engine Essentials, 6pt)
CSCI366 (Mobile Multimedia, 6pt)
CSCI334 (Software Design, 6pt)
CSCI318 (Software Engineering Practices and Principles, 6pt)
ISIT219 (Knowledge and Information Engineering, 6pt)
ISIT315 (Semantic Web, 6pt)
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Required Total Credit: 144pt
The following information is required to complete student enrolment:
Please input your full name: Bob
Please input your student number: 100001
Please input your gender: Male
Please input your date of birth (dd/mm/yyyy): 11/11/2000
Thanks for your information.
In order to complete your enrolment, please select a major from the list:

1. Big Data
2. Cyber Security
3. Digital System Security
4. Game and Mobile Development
5. Software Engineering

Please input the index number before the major:1
You enrolled into:
Big Data
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)


In order to complete the enrolment, please select elective subjects from the list.
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Elective Subjects:
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)
CSCI361 (Cryptography and Secure Applications, 6pt)
CSCI368 (Network Security, 6pt)
CSCI376 (Multicore and GPU Programming, 6pt)
CSCI236 (3D Modelling and Animation, 6pt)
CSCI336 (Interactive Computer Graphics, 6pt)
CSCI356 (Game Engine Essentials, 6pt)
CSCI366 (Mobile Multimedia, 6pt)
CSCI334 (Software Design, 6pt)
CSCI318 (Software Engineering Practices and Principles, 6pt)
ISIT219 (Knowledge and Information Engineering, 6pt)
ISIT315 (Semantic Web, 6pt)

Please select 4 more elective subjects
CSCI334, ISIT219, CSCI318, ISIT315

Congratulations, you completed enrolment into Undegraduate Computer Science.

(Enrol the second student into Master of Computer Science Course and add his/her undergraduate record)
Welcome to enrol into Master of Computer Science.
The Course structure is as follows:
----------------------------------------
Course: Master of Computer Science
Cores:
CSCI814 (IT Porject Management, 6pt)
CSCI851 (Advanced Programming, 6pt)
CSCI803 (Algorithms and Data structures, 6pt)
CSCI835 (Database Systems, 6pt)
MTS9302 (Corporate Network Management, 6pt)
CSIT940 (Research Methodology, 6pt)
CSCI920 (Contemporary Topics in Computer Science, 6pt)
CSCI992 (Professional Project, 12pt)

Majors:
Software Engineering
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)

Intelligent Systems
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)

Network AND Information Security
CSCI968 (Advanced Network Security, 6pt)
INFO912 (Mathematics for cryptography, 6pt)
CSCI971 (Advanced Computer Security, 6pt)
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Machine Learning and Big Data
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)


Electives:
CSCI862 (System Security, 6pt)
CSIT826 (Human Computer Interaction, 6pt)
ISIT925 (Strategic Network Design, 6pt)
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)
CSCI933 (Machine Learning Algorithms and Applications, 6pt)
CSCI935 (Computer Vision Algorithms and Systems, 6pt)
CSCI946 (Big Data Analytics, 6pt)
CSCI968 (Advanced Network Security, 6pt)
INFO912 (Mathematics for cryptography, 6pt)
CSCI971 (Advanced Computer Security, 6pt)
CSCI910 (Software Requirements, Specifications and Formal Methods, 6pt)
CSCI926 (Software Testing and Analysis, 6pt)
CSCI927 (Service-orientated software engineering, 6pt)
ECTE903 (Image and Video Processing, 6pt)
INFO911 (Data mining and Knowledge Discovery, 6pt)
INFO913 (Information Theory, 6pt)
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Required Total Credit: 96pt

The following information is required to complete MASTER's student enrolment:
Please enter your full-name: Amy
Please input your student number: 100002
Please input your gender: Female
Please input your date of birth (dd/mm/yyyy): 12/12/1998
Please enter the time (Session/year) you received your bachelor degree: Autumn/2020
(It is assumed that Amy completed Bachelor of Computer Science with the exact same subjects as Bob.
A same BCS record is added to Amy's enrolment record automatically.)

Thanks for your information. You have been enrolled into a Master of Computer Science.
In order to complete your enrolment, please select a major from the list:

1. Intelligent Systems
2. Machine Learning and Big data
3. Network and Information Security
4. Software Engineering

Please input the index number before the major:1
You enrolled into:
Intelligent Systems
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)
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In order to complete the enrolment, please select elective subjects from the list.

Elective Subjects:
CSCI862 (System Security, 6pt)
CSIT826 (Human Computer Interaction, 6pt)
ISIT925 (Strategic Network Design, 6pt)
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)
CSCI933 (Machine Learning Algorithms and Applications, 6pt)
CSCI935 (Computer Vision Algorithms and Systems, 6pt)
CSCI946 (Big Data Analytics, 6pt)
CSCI968 (Advanced Network Security, 6pt)
INFO912 (Mathematics for cryptography, 6pt)
CSCI971 (Advanced Computer Security, 6pt)
CSCI910 (Software Requirements, Specifications and Formal Methods, 6pt)
CSCI926 (Software Testing and Analysis, 6pt)
CSCI927 (Service-orientated software engineering, 6pt)
ECTE903 (Image and Video Processing, 6pt)
INFO911 (Data mining and Knowledge Discovery, 6pt)
INFO913 (Information Theory, 6pt)
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Please select 4 more elective subjects
CSCI927, ECTE903, INFO911, INFO913
Congratulations you have successfully completed enrolment into Master of Computer Science.
Below is the current enrolments:

Student: Bob (100001, male, 11/11/2000)

Course Name: Bachelor of Computer Science, (ACTIVE)

Cores:
CSIT111 (Programming Fundamentals, 6pt)
CSIT113 (Problem solving, 6pt)
CSIT114 (System Analysis, 6pt)
CSIT115 (Data Management and Security, 6pt)
CSIT121 (Object Oriented Design and Programming, 6pt)
CSIT127 (Networks and Communications, 6pt)
CSIT128 (Introduction to Web Technology, 6pt)
CSCI235 (Database Systems, 6pt)
CSCI251 (Advanced Programming, 6pt)
CSIT214 (IT Project Management, 6pt)
MATH221 (Mathematics for Computer Science, 6pt)
CSCI203 (Data Structures and Algorithms, 6pt)
CSIT226 (Human Computer Interaction, 6pt)
CSIT314 (Software Development Methodologies, 6pt)
CSIT321 (Project, 12pt)

Major: Big Data
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)

Electives:
CSCI334 (Software Design, 6pt)
ISIT219 (Knowledge and Information Engineering, 6pt)
CSCI318 (Software Engineering Practices and Principles, 6pt)
ISIT315 (Semantic Web, 6pt)
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Total Enrolled Credit: 144pt
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Student: Amy (100002, female, 12/12/1998)


Course Name: Bachelor of Computer Science, (COMPLETE)

Cores:
CSIT111 (Programming Fundamentals, 6pt)
CSIT113 (Problem solving, 6pt)
CSIT114 (System Analysis, 6pt)
CSIT115 (Data Management and Security, 6pt)
CSIT121 (Object Oriented Design and Programming, 6pt)
CSIT127 (Networks and Communications, 6pt)
CSIT128 (Introduction to Web Technology, 6pt)
CSCI235 (Database Systems, 6pt)
CSCI251 (Advanced Programming, 6pt)
CSIT214 (IT Project Management, 6pt)
MATH221 (Mathematics for Computer Science, 6pt)
CSCI203 (Data Structures and Algorithms, 6pt)
CSIT226 (Human Computer Interaction, 6pt)
CSIT314 (Software Development Methodologies, 6pt)
CSIT321 (Project, 12pt)

Major: Big Data
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)

Electives:
CSCI334 (Software Design, 6pt)
ISIT219 (Knowledge and Information Engineering, 6pt)
CSCI318 (Software Engineering Practices and Principles, 6pt)
ISIT315 (Semantic Web, 6pt)
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Total Enrolled Credit: 144pt
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```

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Course Name: Master of Computer Science, (ACTIVE)

Cores:
CSCI814 (IT Porject Management, 6pt)
CSCI851 (Advanced Programming, 6pt)
CSCI803 (Algorithms and Data structures, 6pt)
CSCI835 (Database Systems, 6pt)
MTS9302 (Corporate Network Management, 6pt)
CSIT940 (Research Methodology, 6pt)
CSCI920 (Contemporary Topics in Computer Science, 6pt)
CSCI992 (Professional Project, 12pt)

Major: Intelligent Systems
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)

Electives:
CSCI927 (Service-orientated software engineering, 6pt)
ECTE903 (Image and Video Processing, 6pt)
INFO911 (Data mining and Knowledge Discovery, 6pt)
INFO913 (Information Theory, 6pt)
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Total Enrolled Credit: 96pt
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Expected Master Graduation: Spring/2022

Bachelor Degree was received (using downcasting): Autumn/2020
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SECOND TEST WITH NEW INPUTS: (SAME OUTPUT AS ABOVE FOR MOST OF IT SO ONLY NEW INPUTS INCLUDED):

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The following information is required to complete student enrolment:
Please input your full name: Sean
Please input your student number: 100003
Please input your gender: Male
Please input your date of birth (dd/mm/yyyy): 14/08/2000
Thanks for your information.
In order to complete your enrolment, please select a major from the list:

1. Big Data
2. Cyber Security
3. Digital System Security
4. Game and Mobile Development
5. Software Engineering

Please input the index number before the major:2
You enrolled into:
Cyber Security
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)
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In order to complete the enrolment, please select elective subjects from the list.

Elective Subjects:
CSCI317 (Database Performance Tuning, 6pt)
INFO411 (Data Mining and Knowledge Discovery, 6pt)
CSCI316 (Big Data Mining Techniques and Implementation, 6pt)
ISIT312 (Big Data Management, 6pt)
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)
CSCI361 (Cryptography and Secure Applications, 6pt)
CSCI368 (Network Security, 6pt)
CSCI376 (Multicore and GPU Programming, 6pt)
CSCI236 (3D Modelling and Animation, 6pt)
CSCI336 (Interactive Computer Graphics, 6pt)
CSCI356 (Game Engine Essentials, 6pt)
CSCI366 (Mobile Multimedia, 6pt)
CSCI334 (Software Design, 6pt)
CSCI318 (Software Engineering Practices and Principles, 6pt)
ISIT219 (Knowledge and Information Engineering, 6pt)
ISIT315 (Semantic Web, 6pt)

Please select 4 more elective subjects
CSCI366, CSCI356, CSCI336, CSCI236

Congratulations, you completed enrolment into Undegraduate Computer Science.
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-Again, the course structure print out is the same as first example but below it continues with new inputs

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The following information is required to complete MASTER's student enrolment:
Please enter your full-name: James
Please input your student number: 100004
Please input your gender: Male
Please input your date of birth (dd/mm/yyyy): 30/10/1997
Please enter the time (Session/year) you received your bachelor degree: Spring/2019
(It is assumed that Amy completed Bachelor of Computer Science with the exact same subjects as Bob.
A same BCS record is added to Amy's enrolment record automatically.)

Thanks for your information. You have been enrolled into a Master of Computer Science.
In order to complete your enrolment, please select a major from the list:

1. Intelligent Systems
2. Machine Learning and Big data
3. Network and Information Security
4. Software Engineering

Please input the index number before the major:4
You enrolled into:
Software Engineering
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)
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In order to complete the enrolment, please select elective subjects from the list.

Elective Subjects:
CSCI862 (System Security, 6pt)
CSIT826 (Human Computer Interaction, 6pt)
ISIT925 (Strategic Network Design, 6pt)
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)
CSCI933 (Machine Learning Algorithms and Applications, 6pt)
CSCI935 (Computer Vision Algorithms and Systems, 6pt)
CSCI946 (Big Data Analytics, 6pt)
CSCI968 (Advanced Network Security, 6pt)
INFO912 (Mathematics for cryptography, 6pt)
CSCI971 (Advanced Computer Security, 6pt)
CSCI910 (Software Requirements, Specifications and Formal Methods, 6pt)
CSCI926 (Software Testing and Analysis, 6pt)
CSCI927 (Service-orientated software engineering, 6pt)
ECTE903 (Image and Video Processing, 6pt)
INFO911 (Data mining and Knowledge Discovery, 6pt)
INFO913 (Information Theory, 6pt)

Please select 4 more elective subjects
CSCI862, CSIT826, ISIT925, CSCI964

Already enrolled in subject.
Please enter only valid subject codes. NOTE: if multiple must be seperated by ', '
Please select 1 more elective subjects
INFO912
Congratulations you have successfully completed enrolment into Master of Computer Science.
Below is the current enrolments:
```

```
Student: Sean (100003, male, 14/08/2000)

Course Name: Bachelor of Computer Science, (ACTIVE)

Cores:
CSIT111 (Programming Fundamentals, 6pt)
CSIT113 (Problem solving, 6pt)
CSIT114 (System Analysis, 6pt)
CSIT115 (Data Management and Security, 6pt)
CSIT121 (Object Oriented Design and Programming, 6pt)
CSIT127 (Networks and Communications, 6pt)
CSIT128 (Introduction to Web Technology, 6pt)
CSCI235 (Database Systems, 6pt)
CSCI251 (Advanced Programming, 6pt)
CSIT214 (IT Project Management, 6pt)
MATH221 (Mathematics for Computer Science, 6pt)
CSCI203 (Data Structures and Algorithms, 6pt)
CSIT226 (Human Computer Interaction, 6pt)
CSIT314 (Software Development Methodologies, 6pt)
CSIT321 (Project, 12pt)

Major: Cyber Security
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)

Electives:
CSCI366 (Mobile Multimedia, 6pt)
CSCI356 (Game Engine Essentials, 6pt)
CSCI336 (Interactive Computer Graphics, 6pt)
CSCI236 (3D Modelling and Animation, 6pt)
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Total Enrolled Credit: 144pt
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```

```
Student: James (100004, male, 30/10/1997)


Course Name: Bachelor of Computer Science, (COMPLETE)

Cores:
CSIT111 (Programming Fundamentals, 6pt)
CSIT113 (Problem solving, 6pt)
CSIT114 (System Analysis, 6pt)
CSIT115 (Data Management and Security, 6pt)
CSIT121 (Object Oriented Design and Programming, 6pt)
CSIT127 (Networks and Communications, 6pt)
CSIT128 (Introduction to Web Technology, 6pt)
CSCI235 (Database Systems, 6pt)
CSCI251 (Advanced Programming, 6pt)
CSIT214 (IT Project Management, 6pt)
MATH221 (Mathematics for Computer Science, 6pt)
CSCI203 (Data Structures and Algorithms, 6pt)
CSIT226 (Human Computer Interaction, 6pt)
CSIT314 (Software Development Methodologies, 6pt)
CSIT321 (Project, 12pt)

Major: Cyber Security
CSCI301 (Contemporary Topics in Security, 6pt)
CSCI262 (System Security, 6pt)
CSCI369 (Ethical Hacking, 6pt)
CSIT302 (Cybersecurity, 6pt)

Electives:
CSCI366 (Mobile Multimedia, 6pt)
CSCI356 (Game Engine Essentials, 6pt)
CSCI336 (Interactive Computer Graphics, 6pt)
CSCI236 (3D Modelling and Animation, 6pt)
-----------------
Total Enrolled Credit: 144pt
-----------------
```

```
Course Name: Master of Computer Science, (ACTIVE)

Cores:
CSCI814 (IT Porject Management, 6pt)
CSCI851 (Advanced Programming, 6pt)
CSCI803 (Algorithms and Data structures, 6pt)
CSCI835 (Database Systems, 6pt)
MTS9302 (Corporate Network Management, 6pt)
CSIT940 (Research Methodology, 6pt)
CSCI920 (Contemporary Topics in Computer Science, 6pt)
CSCI992 (Professional Project, 12pt)

Major: Software Engineering
CSCI964 (Computational IntellisGenderce, 6pt)
CSCI924 (Reasoning and Learning, 6pt)
CSCI944 (Perception and Planning, 6pt)

Electives:
CSCI862 (System Security, 6pt)
CSIT826 (Human Computer Interaction, 6pt)
ISIT925 (Strategic Network Design, 6pt)
INFO912 (Mathematics for cryptography, 6pt)
-----------------
Total Enrolled Credit: 96pt
-----------------


Expected Master Graduation: Spring/2022

Bachelor Degree was received (using downcasting): Spring/2019
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C:\Users\Sean\Documents\CSI121 OOP\ass2>
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