

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Computer Science	251	CPS 251 11/21/2016- Android Programming Using Java
Division	Department	Faculty Preparer
Business and Computer Technologies	Computer Instruction	Clem. Hasselbach
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Identify XML concepts used in defining the Android programming environment.

- Assessment Plan
 - Assessment Tool: multiple choice exam
 - Assessment Date: Winter 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: Random selection of all students up to a maximum of 100
 - How the assessment will be scored: Answer key
 - Standard of success to be used for this assessment: 70% of the students will score 70% or better on the assessment related questions.
 - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
25	20

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Five of the students completed less than 20% of the work, didn't show up and basically gave up.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Everyone who completed more than 20% of the work was included in the assessment.

These students came from 2 sections. One was a Distance Learning section and the other was a Mixed Mode section. Both sections were combined into one Blackboard site, so I am treating the 20 students (DL and MM combined) as one group.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A Blackboard multiple choice final was given. The statistics that Blackboard can give you with the "Item Analysis" are being provided here.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

All of the questions were isolated that were related to the XML outcome defined above. The Blackboard statistics available for this subset of questions are as follows:

XML outcome average = 93%

XML outcome standard deviation = 13%

XML outcome minimum score = 75%

For all of the questions on the exam, we get the following statistics:

Total test average = 93%

Total test standard deviation = 8%

Total test minimum score = 64%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

The students did fine on this concept. However, XML concepts is too narrow for the nature of what is covered in this course. XML concepts are present, but someone needs to update the syllabus to generalize this concept to something more like "Android infrastructure concepts." This outcome was created a long time ago before we knew all of the details of what this course would cover.

Bottom line is that the students did well on the very few questions on the final related to XML concepts. But in the future this outcome should be a more general category covering the whole range of Android infrastructure details, like Intents, Services, Broadcast Receivers, Activity Life Cycles, the Android Manifest XML characteristics, Widgets, etc.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The students more than met my expectations and the defined outcomes in this report.

I have no plans to change anything because I am now retired from WCC. :-)

Outcome 2: Identify Graphical User Interface (GUI) techniques used in the Android programming environment.

- Assessment Plan
 - Assessment Tool: multiple choice exam
 - Assessment Date: Winter 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: Random selection of all students up to a maximum of 100
 - How the assessment will be scored: Answer key
 - Standard of success to be used for this assessment: 70% of the students will score 70% or better on the assessment related questions.
 - Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
25	20

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Five of the students completed less than 20% of the work, didn't show up and basically gave up.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Everyone who completed more than 20% of the work was included in the assessment.

These students came from 2 sections. One was a Distance Learning section and the other was a Mixed Mode section. Both sections were combined into one Blackboard site, so I am treating the 20 students (DL and MM combined) as one group.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A Blackboard multiple choice final was given. The statistics that Blackboard can give you with the "Item Analysis" are being provided here.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

All of the questions were isolated that were related to the GUI outcome defined above. The Blackboard statistics available for this subset of questions are as follows:

GUI outcome average = 95%

GUI outcome standard deviation = 8%

GUI outcome minimum score = 75%

For all of the questions on the exam, we get the following statistics:

Total test average = 93%

Total test standard deviation = 8%

Total test minimum score = 64%

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

For the most part, students did very well with Graphical User Interface concepts. Not only did they perform well on the final exam, but they also used Graphical User Interface concepts extensively throughout the semester in 7 assignments. In the first 6 assignments they solve specified programming assignments. In the last assignment, which shows up in the assessment report as item 4, the students have to define a project of their own choosing. Many of the projects presented had some awesome GUI creativity.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The students more than met my expectations and the defined outcomes in this report.

I have no plans to change anything because I am now retired from WCC. :-)

Outcome 3: Identify the various ways that data can be retrieved and saved on an Android device.

- Assessment Plan
 - Assessment Tool: multiple choice exam
 - Assessment Date: Winter 2016
 - Course section(s)/other population: All sections

- Number students to be assessed: Random selection of all students up to a maximum of 100
- How the assessment will be scored: Answer key
- Standard of success to be used for this assessment: 70% of the students will score 70% or better on the assessment related questions.
- Who will score and analyze the data: Departmental faculty

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
25	20

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Five of the students completed less than 20% of the work, didn't show up and basically gave up.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Everyone who completed more than 20% of the work was included in the assessment.

These students came from 2 sections. One was a Distance Learning section and the other was a Mixed Mode section. Both sections were combined into one Blackboard site, so I am treating the 20 students (DL and MM combined) as one group.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

A Blackboard multiple choice final was given. The statistics that Blackboard can give you with the "Item Analysis" are being provided here.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this

learning outcome and indicate whether the standard of success was met for this outcome and tool.

<p>Met Standard of Success: <u>Yes</u></p> <p>All of the questions were isolated that were related to the retrieving and saving data outcome defined above. The Blackboard statistics available for this subset of questions are as follows:</p> <p>Data outcome average = 91%</p> <p>Data outcome standard deviation = 8%</p> <p>Data outcome minimum score = 60%</p> <p>For all of the questions on the exam, we get the following statistics:</p> <p>Total test average = 93%</p> <p>Total test standard deviation = 8%</p> <p>Total test minimum score = 64%</p>
--

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

<p>For the most part students did very well with Android data concepts. Not only did they perform well on the final exam, but they also used Data concepts extensively throughout the semester in 7 assignments. In the first 6 assignments they solve specified programming assignments. In the last assignment, which shows up in the assessment report as item 4, the students have to define a project of their own choosing. Many of the projects presented had some awesome Data creativity. Examples of Data usage involved Android database projects, Google Maps/GPS data access, and more. One project even used an Android to read out a car's OBD data port, which can tell you many things about how your car is running, or even malfunctioning.</p>
--

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

<p>The students more than met my expectations and the defined outcomes in this report.</p> <p>I have no plans to change anything because I am now retired from WCC. :-)</p>

Outcome 4: Develop Java programs that run on android devices.

- Assessment Plan
 - Assessment Tool: Programming Exercise
 - Assessment Date: Fall 2016
 - Course section(s)/other population: All sections
 - Number students to be assessed: Random sample of 25% of all students with a minimum of one full section
 - How the assessment will be scored: Departmentally-developed rubric
 - Standard of success to be used for this assessment: 70% of the students will successfully complete the exercise
 - Who will score and analyze the data: Departmental faculty
1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
	2017	

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
25	18

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Five of the students completed less than 20% of the work, didn't show up and basically gave up. Two students did not complete the project.
--

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

Everyone who completed more than 20% of the work were included in the assessment.
These students came from 2 sections. One was a Distance Learning section and the other was a Mixed Mode section. Both sections were combined into one

Blackboard site, so I am treating the 20 students (DL and MM combined) as one group.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

There was a final project which consisted of a programming assignment in which each student created their own unique project.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

I was very happy with the many good projects that were turned in. The students actually rated each other in a "class presentation" format. Their ratings were very high, perhaps a bit inflated. So I went back and did my own more stringent rating on each of the projects. Most of these projects were actually quite good, but I wanted to see what would happen if I rated these projects with a rather tough standard. Other than the tougher standard I used the same rubric that the students used to rate each other. The details are below:

I set the level of succes as being > 75% on the overall score which had a max of 140 points.

14 out of 18 (77%) of the students achieved this level of success.

This score is made up of 4 components:

80 pts - Does it work

20 pts - Intuitive User Interface

20 pts - Creativity

20 pts - Level of Difficulty

The entries in the following data contain student number (to keep the data anonymous), followed by overall score, and the above 4 components followed by my high level comments:

#1: 71% 60 15 12 12 Restaurant menu selection to Chef communication

#2:	87%	80	14	14	14	Animator App that rotates an image
#3:	94%	80	12	20	20	Connected to a Car ODB port
#4:	83%	80	12	12	12	trip logger ... shows trip on a map
#5:	100%	80	20	20	20	Amazing ... auto connection app
#6:	92%	80	18	16	15	SQLite Bowling scores tracker
#7:	96%	80	18	18	18	Neat Stock quote retriever
#8:	49%	20	16	16	16	"Not sure what he did, it may have been lifted"
#9:	76%	80	10	8	8	To do list that looks pretty much like the word manager
#10:	100%	80	20	20	20	Pretty neat Pong game.
#11:	96%	80	15	20	20	Interesting game ... might want to borrow some of it
#12:	100%	80	20	20	20	Cakes of Hanoi
#13:	100%	80	20	20	20	Pretty cool Google Map/Picture app
#14:	47%	30	12	10	14	Database version of Word Manager/Hangman
#15:	71%	80	10	5	5	Dumb word manager snack checker
#16:	89%	80	15	15	15	Slider game ... pretty solid application
#17:	100%	80	20	20	20	Neat kids' app for his 2-year-old son
#18:	100%	80	20	20	20	Geo-Messages ... pretty cool might want to borrow it

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

For the most part students did very well in their programming assignments. In the first 6 assignments they had to write a program that was well defined in the course. In the last assignment, the students have to define a project of their own choosing. Not only was there a high completion rate on the 7 assignments, but there was also a lot of creativity exhibited in the last assignment/project. For example, we had projects using databases, Google Maps/GPS, Android car access, creative kids' applications designed for 2-year-olds, and a program called "Cakes of Hanoi," which was an interactive take-off on the famous "Towers of Hanoi" game.

- Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

The students more than met my expectations and the defined outcomes in this report.

I have no plans to change anything because I am now retired from WCC. :-)

II. Course Summary and Action Plans Based on Assessment Results

- Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

I believe that the overall performance of this class exceeded my expectations for this course. The material is known to be the most challenging course we have in our Java curriculum (CPS161, CPS261, CPS278, and **CPS251**). We had a very high completion rate on all of the 7 assignments. The performance on the final was very good. A lot of great creativity was shown in the last assignment in which the students get to pick their own project to do and present it to the rest of the class.

I would recommend that the XML outcome be changed in a future version of the CPS251 syllabus. This was discussed in the associated "Analysis by Outcome" section.

Since I am now currently retired, I am going to recommend it to the next person who teaches CPS251.

- Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

I will pass the information on to our department chair and all of the faculty members in our department who teach Java programming courses. This will be done before the Fall 2017 semester starts.

- Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
No changes intended.			

- Is there anything that you would like to mention that was not already captured?

III. Attached Files

Faculty/Preparer: Clem. Hasselbach **Date:** 05/09/2017
Department Chair: Philip Geyer **Date:** 06/22/2017
Dean: Kristin Good **Date:** 06/26/2017
Assessment Committee Chair: Michelle Garey **Date:** 10/18/2017