# 1) Student Information

**Report Example:**

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Student Information

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ID: 31 Bob Smith

Groups: track, basketball, student council,

English [80, 100]

Science [100, 80]

**Data Example:**

students = {  
 31: {  
 **‘first\_name’**: **'Bob'**,  
 **‘last\_name’**: **'Smith'**,  
 **'gender'**: **'M'**,  
 **'groups'**: {**'basketball'**, **'track'**, **'student council'**}  
 },

grades = {  
 **‘math’**: {  
 22: [90, 100, 100],  
 13: [80, 75, 80, 80],  
 41: [70, 55, 70, 75],  
 45: [70, 75, 55]  
 },

**Psuedocode:**

for key (student id), value (student data dict) in 2D students dict items

display student id and name

for each group in student’s group set

display the student’s group set using a print with end=’, ‘

for key (course), value (course grades dict) in 2D grades dict items

if student id in course grades dict

display course, and student’s grade list

# 2) All Sports

**Report Example:**

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All Sports

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baseball

basketball

cross country

football

softball

track

volleyball

wrestling

**Data Example:**

sports = {  
 **'fall'**: {**'football'**, **'volleyball'**, **'cross country'**},  
 **'winter'**: {**'basketball'**, **'wrestling'**},  
 **'spring'**: {**'track'**},  
 **'summer'**: {**'baseball'**, **'softball'**}  
}

**Psuedocode:**

Create an all sports empty list

for key (season), value (season sports set) in sports items

convert the current season’s set to a list

add the newly create list to the full list using the extend method to add more than one item at a time

sort list

display the all sports list using the iterator unpack operator, example:

print(\*all\_sports, sep=**'\n'**)

# 3) Each Course Gender

**Report Example:**

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Each Course Genders

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Math: Male = 1 Female = 3

English: Male = 2 Female = 3

Science: Male = 2 Female = 3

**Data Example:**

students = {  
 31: {  
 **‘first\_name’**: **'Bob'**,  
 **‘last\_name’**: **'Smith'**,  
 **'gender'**: **'M'**,  
 **'groups'**: {**'basketball'**, **'track'**, **'student council'**}  
 },

grades = {  
 **‘math’**: {  
 22: [90, 100, 100],  
 13: [80, 75, 80, 80],  
 41: [70, 55, 70, 75],  
 45: [70, 75, 55]  
 },

**Psuedocode:**

*To do this one, it’s easiest to first create a temporary 2D course gender dict, example:  
  
‘math’: {'Female': 3, 'Male': 1}  
'english': {'Female': 3, 'Male': 2}  
'science': {'Female': 3, 'Male': 2}*

create an empty course gender dict

for key (course), value (course grades dict) in 2D grades dict items

set male and female counters to 0

for key (student id), value (student grades list) in course grades dict items

get gender for the current student id from the students 2D dict

increment the correct gender counter

append to the course gender dict, using the course as the key, a dict with female and male counts

for key (course), value (genders dict) in course gender 2D dict items

display the course, and genders dict

# 4) Sue Smith Course List

**Report Example:**

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Sue Smith Course List

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Math, English, Science

**Data Example:**

students = {  
 22: {  
 **‘first\_name’**: **Sue**,  
 **‘last\_name’**: **'Smith'**,  
 **'gender'**: **'F'**,  
 **'groups'**: {**'volleyball'**, **'basketball'**, **'track'**, **'softball'**, **'national honor society'**}  
 },

grades = {  
 **‘math’**: {  
 22: [90, 100, 100],  
 13: [80, 75, 80, 80],  
 41: [70, 55, 70, 75],  
 45: [70, 75, 55]  
 },

**Psuedocode:**

create an empty list to store Sue’s courses in

for key (student id), value (student data dict) in 2d students dict items

get first and last names from the student data dict

if the first name = Sue and the last name = Smith

for key (course), value (course grades dict) in 2D grades dict items

if student id in course grades dict

add the course name to Sue’s course set using the apend method

sort the list

display the list using the iterator unpack operator

# 5) Students in Science not Math

**Report Example:**

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Students in Science not Math:

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31# Bob Smith

55# Sue Johnson

**Data Example:**

students = {  
 22: {  
 **‘first\_name’**: **Sue**,  
 **‘last\_name’**: **'Smith'**,  
 **'gender'**: **'F'**,  
 **'groups'**: {**'volleyball'**, **'basketball'**, **'track'**, **'softball'**, **'national honor society'**}  
 },

grades = {  
 **‘math’**: {  
 22: [90, 100, 100],  
 13: [80, 75, 80, 80],  
 41: [70, 55, 70, 75],  
 45: [70, 75, 55]  
 },

**Psuedocode:**

create an empty list to store the student ids in

for key (student id), value (student data dict) in 2d students dict items

if student id in grades science and student id not in grades math

append student id to set

sort the list

display the list

# 6) NonSports Groups

**Report Example:**

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Non-Sports Groups

================================================================================

student council

national honor society

# 7) All Season Sports Students

**Report Example:**

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Students in All Four Seasons of Sports

================================================================================

22 Sue Smith

41 Joe Jones

# 8) Students in Same Coursees as Sue Smith

**Report Example:**

================================================================================

Students in Same Coursees as Sue Smith

================================================================================

13 Amy Hans

41 Joe Jones

# 9) Students with Low Grades

**Report Example:**

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Students with Low Grades

================================================================================

41 Joe Jones

45 Sue Johnson