

DATA DICTIONARY			
ENTITY	DEFINITION	ENTITY RELATIONSHIPS	ATTRIBUTES
<b>Student</b>	A person who is registered with the institution and has registered for a course, this individual is also taking modules or subjects that are offered within the course, thus ultimately a student is an individual who has at least registered a single module. – this is according to this business rule – an individual who is registers with the institution and registered for a course but has not registered for a module is called a prospective student a student cannot register for a module without having registered for a course – For the module is dependent on the course. – It is assumed that an individual who is registered for a course is also registered with the institution.	a <b>STUDENT</b> registers to an <b>INSTITUTION</b> – An <b>INSTITUTION</b> takes many <b>STUDENTS</b>	stud_number first_name last_name id_nr sex phone email address
		a <b>STUDENT</b> registers to a single <b>COURSE</b> a <b>COURSE</b> is taken by many <b>STUDENTS</b>	
		a <b>STUDENT</b> attends one or many <b>LECTURES</b> , a <b>LECTURE</b> is attended by one of many <b>STUDENTS</b>	
		a <b>STUDENT</b> takes one or many <b>MODULES</b> , a <b>MODULE</b> may be taken by many <b>STUDENTS</b>	
<b>Module</b>	A module is take by the student, <b>specific modules make up a course</b> or we can also say a course describes a specific set of <b>modules a module is taught by lecturer during a lecture [class]</b> A student receives marks at the end of the semester for the module they have enrolled for – a module has a time frame, it has a start date and an end date.	a <b>MODULE</b> may be taught in/during one or many <b>LECTURES</b>	PK module_code module_name year semester
		a <b>STUDENT</b> takes one or many <b>MODULES</b> , a <b>MODULE</b> may be taken by many <b>STUDENTS</b>	

<b>Lecture [Class]</b>	<p>A lecture/class is attended by a student, a lecture may contain many students and may be taught by many lecturers – When lectures are taught by many lecturers [based upon the number of students] Lecture are divided into lecture [Class] groups. A lecture takes place in a venue, at specific times and dates, a lecture has a duration. <del>Students will be allocated marks at the end of the lecture</del> a lecture is derived from a module <del>a lecture is thus depended on a module for the purpose of the lecture is the module.</del></p> <p>For the purpose simplicity the word lecture is used with the word class interchangeably – They are thus synonymous</p>	<p>a <b>LECTURE</b> is attended by one or many <b>STUDENTS</b> – but at a point in time a <b>STUDENT</b> must attend only one <b>LECTURE</b></p> <p>at point in time a <b>LECTURE</b> is facilitated by one <b>LECTURER</b></p> <p>a <b>LECTURER</b> is assigned one or many <b>LECTURES</b> but the same instance of <b>LECTURE</b> may not be assigned to more than one <b>LECTURER</b> at a time</p> <p>a <b>MODULE</b> is taught during a <b>LECTURE</b>, but the same <b>MODULE</b> may taught in more than one <b>LECTURE</b> at a time</p>	<p>lecture_id INT(5) PRIMARY KEY module_code FK</p>
<b>Lecturer</b>	<p>A lecturer is an individual who is registered with the institution to facilitate a lecture, <del>The lecturer allocates marks to students based upon their performance</del> – This individual lectures a module or many modules, Lecturers are not confined to courses but they belong to a department.</p> <p>The definition of a lecturer in this overview is based upon the business rules of the system which has thus being proposed.</p> <p>A lecture entity can be thought of as a file that describes a set of events that a student has been involved in that contribute to a student being assessed by the institution. For this event to occur there needs to be a student, Module and Lecturer other things that are not be mandatory but advised to have such as venue, time and day define the lecture.</p>	<p>a <b>LECTURER</b> facilitates one or many <b>LECTURES</b>, a <b>LECTURE</b> is facilitated by one or many <b>LECTURERS</b></p>	<p>lecture_id module_code semester year prerequisite_module</p>

<b>Lecture_student</b>	<p>A lecture_student is a file containing all the lectures that a takes or has taken [This file serves as an associative entity – For a student can take many lectures and the same lecture can be taken by many students]</p> <p>In this business case a student registers for a course which contains a set of related modules that are specific to that course [as per definition of the <b>course</b> entity], and therefore every semester a student takes one or many lectures [in the internal and conceptual level a student takes a lecture – The lecture contains a module, for the lecture is derived from the module – Therefore the institution issues lectures for students to enrol – The lecture connects a module, lecturer and student together thus producing a file that acts as a student’s academic record –People in the real world would use the phrase ‘student registers for a module’] a student may therefore take no lecture at all but if they are registered to a course they are considered as student and if they are not registered to any course they cannot take a lecture – for the lecture is derived from a module which module is derived from a course, but the student has freedom to choose the number of lectures they take, based upon the lectures prerequisite modules.</p>	<p>this is an associative entity for <b>LECTURE</b> and <b>STUDENT</b> this break the many to many relationship between <b>LECTURE</b> and <b>STUDENT</b> table</p>	<p>lecture_student_id reg_date lecture_id</p>
<b>Group</b>	<p>A group is a file which contains all the groups that have been created by the lecturer, this file allows students to know their groups, and to also know their group members – Students who belong to a group are grouped based upon their academic level, furthermore they are grouped according to a balanced gender ratio.</p> <p>A group file may contain many students inside of it – but it should not by default contain a single student unto themselves for a single student is not a group – but a single student by ‘choice’ may choose to work individually. This file is created by the lecturer, based upon the lecturer’s desired constraints.</p> <p>This group is for only a single module <del>or for modules which lecturers facilitate,</del> for lecturers cannot create groups for modules which they do not facilitate. The lecturer has the privilege of creating, reading, deleting and inserting data into this file but students only have the privilege of reading this file – For they cannot group themselves expect if they choose to work individually upon which the lecturer will still be the one who will update the group after having consulted with the student.</p>	<p>a <b>LECTURER</b> creates one or many <b>GROUPS</b>, but the same <b>GROUP</b> cannot be created by many <b>LECTURERS</b> for it can only be created by one <b>LECTURER</b></p> <p>a <b>STUDENT</b> belongs to only one <b>GROUP</b>, but a <b>GROUP</b> may contain one or many <b>STUDENTS</b>.</p> <p>a <b>GROUP</b> belongs to one <b>GROUP_TYPE</b>, and a <b>GROUP_TYPE</b> may have one or many <b>GROUPS</b></p>	<p>group_id group_name member_name member_surname member_stud_number member_mark</p>

		a GROUP belongs to a LECTURE	
<b>Group_type</b>	<p>A group type is a folder to which a group file belongs. <del>A group type is optional</del> – If there is only one group type, then the group type is considered immaterial but it may still be created – <del>a group type gains its purpose and meaning when more group types are created by the lecturer</del> (For a group type may only be created by lecturer for a specific lecture – therefore a group type belong belongs to only one lecture and not many lectures) they easily distinguish groups from each other, <del>a group belongs to a group type</del> – A group type file specifies academic levels to which students belong.</p> <p>Every group belong to a group type – This by default.</p>	<p>a <b>GROUP_TYPE</b> belongs to one <b>LECTURE</b> and a <b>LECTURE</b> may have one or may <b>GROUP_TYPES</b></p> <p>a <b>GROUP_TYPE</b> has one or many <b>GROUPS</b>, but the same <b>GROUPS</b> can only belong to one <b>GROUP_TYPE</b></p> <p>a <b>GROUP_TYPE</b> belongs to one <b>LECTURE</b>, and a <b>LECTURE</b> may have one or many <b>GROUPS_TYPES</b></p>	group_type_id group_type_name group_type_description lecture_id
<b>course</b>	<p>A course is an entity to which a student registers – The purpose of such a registration is to declare to the institution the field of study to which the student is going to specify in – A course contains a set of modules that the student has study, upon completion of all the course related modules, the student will then be awarded a certificate stating that the student is competent in that field of study. – A course belongs to a faculty.</p> <p>A student may choose to discontinue a course upon which they will have to register for another course else the individual will be considered as a prospective student for a 'student' cannot take a module without taking a course and thus the individual is a prospective student.</p>	<p>a <b>STUDENT</b> registers for one and only one <b>COURSE</b>. a <b>COURSE</b> may have one or many <b>STUDENTS</b></p> <p>a <b>COURSE</b> contains a set of <b>MODULES</b>, a <b>MODULE</b> may belong to more than one <b>COURSES</b></p> <p>a <b>CORUSE</b> belongs to only one <b>FACUTLY</b>, a <b>FUCULTY</b> may have more than one <b>COURSES</b></p>	course_id coruse_name faculty_id

# DSO GROUPING SYSTEM DATA EXAMPLES

COURSE	
course_id	course_name
1	Development Software
2	Industrial Information System

STUDENT						
stud_number	first_name	last_name	id_nr	sex	phone	email
216955960	Shiko	Matlala	9511275418082	M	0765870538	shikomatlala@gmail.com
218995411	James	Livingston	9811275418082	M	0775870538	jameston@gmail.com
217695472	Nqobile	Manaka	9801010025086	F	0885210566	nqobilemanaka@gmail.com

STUDENT_COURSE_RESITRATION			
course_reg_id	red_date	stud_number	course_id
1	28-06-2021	216955960	1
2	28-06-2021	217695472	2
3	28-06-2021	218995411	1

MODULE		
module_code	module_name	credit
DSO34BT	Development Software III B	0.125
DSO34AT	Development Software III A	0.125
ISY34AT		0.125
ISY34BT		0.125
IDC30AT		0.125
ISY23BT		0.125
TPG201AT	Technical Programming III A	0.250
DSO23BT		0.125
SSF24BT		0.125
ISY23AT		0.125
DSO23AT		0.125
TPG111T		0.250
SSF23AT		0.125
DSO17BT		0.125
CFS10BT		0.125
CGS10BT		0.125
CMK10BT		0.125
DSO17AT		0.125
CFS10AT		0.125
CGS10AT		0.125
CMK10AT		0.125

COURSE_MODULE			
course_module_id	date	course_id	module_code
1	28-06-2016	1	DSO34BT
2	28-06-2016	1	DSO34AT
3	28-06-2015	1	ISY34AT
4	28-06-2015	1	ISY34BT
5	28-06-2015	1	IDC30AT
2 <sup>nd</sup> year			

6	28-06-2016	1	ISY23BT
7	28-06-2016	1	TPG201AT
23	28-06-2016	2	TPG201AT
8	28-06-2015	1	DSO23BT
9	28-06-2015	1	SSF24BT
10	28-06-2016	1	ISY23AT
11	28-06-2016	1	DSO23AT
12	28-06-2015	1	TPG111T
22	28-06-2015	2	TPG111T
13	28-06-2015	1	SSF23AT
1 <sup>ST</sup> year			
14	28-06-2016	1	DSO17BT
15	28-06-2016	1	CFS10BT
16	28-06-2015	1	CGS10BT
17	28-06-2015	1	CMK10BT
18	28-06-2016	1	DSO17AT
19	28-06-2016	1	CFS10AT
20	28-06-2015	1	CGS10AT
21	28-06-2015	1	CMK10AT

LECTURE				
lecture_id	module_code	semester	year	prerequisite_module
1	DSO34BT	1	2021	DSO23BT
2	DSO34AT	1	2021	DSO23BT

LECTURE_STUDENT			
lecture_stud_id	reg_date	lecture_id	stud_number
1	12-02-2021	1	216955960
2	12-02-2021	2	216955960

LECTURER						
staff_number	first_name	last_name	id_nr	sex	phone	email
10023	Lerutle	Pholo	6911275418082	M	0765870538	lerutlepholo@gmail.com
22010	Ephraim	Sanyane	7011275418082	M	0775870538	ephraimsanyane@gmail.com
18203	Lerato	Makapane	8901010025086	F	0885210566	leratomakapane@gmail.com

LECTURE_LLECTURER						
lecture_lecturer_id	staff_number	lecture_id	vanue	start_time	end_time	day
1	10023	1	10-138	10:00	11:00	Monday
2	10023	1	10-138	08:00	09:00	Wednesday
3	10023	1	10-138	12:00	01:00	Wednesday
4	10023	1	10-138	13:00	14:00	Thursday
5	10023	1	10-138	14:00	15:00	Thursday
6	10023	1	10-138	11:00	12:00	Friday
7	22010	2	10-L57	09:00	10:00	Monday
8	22010	2	10-L57	12:00	01:00	Tuesday
9	22010	2	10-L57	10:00	11:00	Thursday
10	22010	2	10-L57	02:00	03:00	Friday
11	22010	2	10-L57	03:00	04:00	Friday

LECTURE_GROUP			
lecture_group_id	group_name	lecture_id	staff_number
1	DSO34BT_2021	1	10023
2	Mrs_Makapane_DSO34AT_2021	2	22010



GROUP_TYPE			
group_type_id	group_type_name	total_credit	lecture_group_id
1	Level 1	2,250	1
2	Level 2	2,375	1
3	Level 3	2,500	1
4	Level 4	2,625	1
5	Level 5	2,750	1
6	Level 6	2,000	1
7	Level 7	1,875	1
8	Level 8	1,750	1
9	Level 9	1,625	1
10	Level 10	1,500	1

GROUP		
group_id	group_name	group_type_id
1	Group J	1
2	Group K	1
3	Group L	1
4	Group M	1
5	Group N	1
6	Group O	1

GROUP_MEMBER			
group_member_id	member_mark	member_stud_id	group_id
1	0	216955960	1