

Write the commands for creating tables and inserting values;

```
SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
START TRANSACTION;
SET time_zone = "+00:00";

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS
*/;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION
*/;
/*!40101 SET NAMES utf8mb4 */;

CREATE DATABASE IF NOT EXISTS `grade_book` DEFAULT CHARACTER SET
utf8mb4 COLLATE utf8mb4_general_ci;
USE `grade_book`;

DROP TABLE IF EXISTS `course`;
CREATE TABLE `course` (
  `c_id` int(11) NOT NULL,
  `lec_id` int(11) DEFAULT NULL,
  `c_name` varchar(255) DEFAULT NULL,
  `c_year` int(11) DEFAULT NULL,
  `c_sem` varchar(255) DEFAULT NULL,
  `c_weeks` int(11) DEFAULT NULL,
  `c_participation_pts` int(11) DEFAULT NULL COMMENT 'Percentage of grade for
participation',
  `c_assignment_pts` int(11) DEFAULT NULL COMMENT 'Percentage of grade for
assignments',
  `c_project_pts` int(11) DEFAULT NULL COMMENT 'Percentage of grade for
projects',
  `c_exam_pts` int(11) DEFAULT NULL COMMENT 'Percentage of grade for exams',
  `created_at` date DEFAULT NULL,
  `updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;
DROP TRIGGER IF EXISTS `total_check_before_insert`;
DELIMITER $$
CREATE TRIGGER `total_check_before_insert` BEFORE INSERT ON `course` FOR
EACH ROW BEGIN
DECLARE total_marks integer;
DECLARE participation integer;
DECLARE assignment integer;
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DECLARE project integer;
DECLARE exam integer;

SET participation = NEW.c_participation_pts;
SET assignment = NEW.c_assignment_pts;
SET project = NEW.c_project_pts;
SET exam = NEW.c_exam_pts;

SET total_marks = participation + assignment + project + exam;

IF total_marks < 100 THEN
    SIGNAL SQLSTATE '45000'
    SET MESSAGE_TEXT = 'All categories need to add upto exactly 100',
    MYSQL_ERRNO = 1001;
ELSEIF total_marks > 100 THEN
    SIGNAL SQLSTATE '45000'
    SET MESSAGE_TEXT = 'All categories need to add upto exactly 100',
    MYSQL_ERRNO = 1001;
END IF;
END
$$
DELIMITER ;

DROP TABLE IF EXISTS `course_coursework`;
CREATE TABLE `course_coursework` (
  `cw_id` int(11) NOT NULL,
  `cw_c_id` int(11) DEFAULT NULL,
  `cw_course_type` enum('assignment','project','exam') DEFAULT NULL COMMENT
'Allowed types: project, assignment, exam',
  `cw_content` text DEFAULT NULL COMMENT 'course work content',
  `cw_release_date` date DEFAULT NULL,
  `cw_due_date` date DEFAULT NULL,
  `cw_total` int(11) DEFAULT 100,
  `created_at` date DEFAULT NULL,
  `updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

DROP TABLE IF EXISTS `course_participation`;
CREATE TABLE `course_participation` (
  `cp_id` int(11) NOT NULL,
  `cp_stc_id` int(11) DEFAULT NULL,
  `cp_week` int(11) DEFAULT NULL,
  `cp_present` tinyint(1) DEFAULT NULL,

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`created_at` date DEFAULT NULL,
`updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;
DROP TRIGGER IF EXISTS `ensure_participation_not_exceeded`;
DELIMITER $$
CREATE TRIGGER `ensure_participation_not_exceeded` BEFORE INSERT ON
`course_participation` FOR EACH ROW BEGIN
DECLARE total_participation integer;
DECLARE total_weeks integer;

SET total_weeks = (SELECT course.c_weeks FROM student_courses
                    JOIN course ON student_courses.c_id = course.c_id WHERE
student_courses.stc_id = NEW.cp_stc_id);

SET total_participation = (SELECT COUNT(cp_id) FROM course_participation
WHERE cp_stc_id = NEW.cp_stc_id);

IF total_participation >= total_weeks THEN
    SIGNAL SQLSTATE '45000'
    SET MESSAGE_TEXT = 'You have reached the maximum number of attendances for
this course';
END IF;

END
$$
DELIMITER ;

DROP TABLE IF EXISTS `lecturer`;
CREATE TABLE `lecturer` (
  `lec_id` int(11) NOT NULL,
  `lec_name` varchar(255) DEFAULT NULL,
  `lec_gender` enum('male','female','other') DEFAULT NULL,
  `lec_email` varchar(255) DEFAULT NULL,
  `lec_phone` varchar(255) DEFAULT NULL,
  `created_at` date DEFAULT NULL,
  `updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

DROP TABLE IF EXISTS `student`;
CREATE TABLE `student` (
  `st_id` int(11) NOT NULL,
  `st_name` varchar(255) DEFAULT NULL,

```

```
`st_email` varchar(255) DEFAULT NULL,  
`st_phone` varchar(255) DEFAULT NULL,  
`st_gender` enum('male','female','other') DEFAULT NULL,  
`created_at` date DEFAULT NULL,  
`updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE  
current_timestamp()  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;
```

```
DROP TABLE IF EXISTS `student_courses`;  
CREATE TABLE `student_courses` (  
  `stc_id` int(11) NOT NULL,  
  `st_id` int(11) DEFAULT NULL,  
  `c_id` int(11) DEFAULT NULL,  
  `created_at` date DEFAULT NULL,  
  `updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE  
current_timestamp()  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;  
DROP TRIGGER IF EXISTS `ensure_no_duplicate_student_course`;  
DELIMITER $$  
CREATE TRIGGER `ensure_no_duplicate_student_course` BEFORE INSERT ON  
`student_courses` FOR EACH ROW BEGIN  
  DECLARE course_count integer;
```

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  SET course_count = (SELECT COUNT(stc_id) FROM student_courses WHERE st_id =  
NEW.st_id AND c_id = NEW.c_id);
```

```
  IF course_count > 0 THEN  
    SIGNAL SQLSTATE '45000'  
    SET MESSAGE_TEXT = 'A student can enroll to a course once';  
  END IF;
```

```
END  
$$  
DELIMITER ;
```

```
DROP TABLE IF EXISTS `student_course_coursework`;  
CREATE TABLE `student_course_coursework` (  
  `cw_id` int(11) NOT NULL,  
  `stc_id` int(11) NOT NULL,  
  `marks` int(11) DEFAULT NULL,  
  `created_at` date DEFAULT NULL,  
  `updated_at` timestamp NOT NULL DEFAULT current_timestamp() ON UPDATE  
current_timestamp()  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;
```

```
ALTER TABLE `course`  
  ADD PRIMARY KEY (`c_id`),  
  ADD KEY `lec_id` (`lec_id`);
```

```
ALTER TABLE `course_coursework`  
  ADD PRIMARY KEY (`cw_id`),  
  ADD KEY `cw_c_id` (`cw_c_id`);
```

```
ALTER TABLE `course_participation`  
  ADD PRIMARY KEY (`cp_id`),  
  ADD KEY `cp_stc_id` (`cp_stc_id`);
```

```
ALTER TABLE `lecturer`  
  ADD PRIMARY KEY (`lec_id`);
```

```
ALTER TABLE `student`  
  ADD PRIMARY KEY (`st_id`);
```

```
ALTER TABLE `student_courses`  
  ADD PRIMARY KEY (`stc_id`),  
  ADD KEY `st_id` (`st_id`),  
  ADD KEY `c_id` (`c_id`);
```

```
ALTER TABLE `student_course_coursework`  
  ADD PRIMARY KEY (`cw_id`, `stc_id`),  
  ADD KEY `stc_id` (`stc_id`);
```

```
ALTER TABLE `course`  
  MODIFY `c_id` int(11) NOT NULL AUTO_INCREMENT;
```

```
ALTER TABLE `course_coursework`  
  MODIFY `cw_id` int(11) NOT NULL AUTO_INCREMENT;
```

```
ALTER TABLE `course_participation`  
  MODIFY `cp_id` int(11) NOT NULL AUTO_INCREMENT;
```

```
ALTER TABLE `lecturer`  
  MODIFY `lec_id` int(11) NOT NULL AUTO_INCREMENT;
```

```
ALTER TABLE `student`  
  MODIFY `st_id` int(11) NOT NULL AUTO_INCREMENT;
```

```
ALTER TABLE `student_courses`  
  MODIFY `stc_id` int(11) NOT NULL AUTO_INCREMENT;
```

```
ALTER TABLE `course`  
  ADD CONSTRAINT `course_ibfk_1` FOREIGN KEY (`lec_id`) REFERENCES  
  `lecturer` (`lec_id`);
```

```
ALTER TABLE `course_coursework`  
  ADD CONSTRAINT `course_coursework_ibfk_1` FOREIGN KEY (`cw_c_id`)  
  REFERENCES `course` (`c_id`);
```

```
ALTER TABLE `course_participation`  
  ADD CONSTRAINT `course_participation_ibfk_1` FOREIGN KEY (`cp_stc_id`)  
  REFERENCES `student_courses` (`stc_id`);
```

```
ALTER TABLE `student_courses`  
  ADD CONSTRAINT `student_courses_ibfk_1` FOREIGN KEY (`st_id`)  
  REFERENCES `student` (`st_id`),  
  ADD CONSTRAINT `student_courses_ibfk_2` FOREIGN KEY (`c_id`) REFERENCES  
  `course` (`c_id`);
```

```
ALTER TABLE `student_course_coursework`  
  ADD CONSTRAINT `student_course_coursework_ibfk_1` FOREIGN KEY (`cw_id`)  
  REFERENCES `course_coursework` (`cw_id`),  
  ADD CONSTRAINT `student_course_coursework_ibfk_2` FOREIGN KEY (`stc_id`)  
  REFERENCES `student_courses` (`stc_id`);  
COMMIT;
```

```
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;  
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;  
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
```