# Create/Delete database

context.Database.Delete();

# context.Database.Create();

# Create entities

* Create multiple rows

context.Students.AddRange(students); //students is the list of student

context.SaveChanges();

* Create one row

Student newStudent = new Student

{

StudentFirstName = firstName,

};

context.Students.Add(newStudent);

context.SaveChanges();

updateGridView(); // dataGridViewStudent.Refresh();

# Select Entities

* Get selected row’s values

foreach(DataGridViewRow row in dataGridViewStudent.SelectedRows)

{

selectedCourses.Add(context.Courses.Find(row.Cells[0].Value, row.Cells[1].Value)); }

foreach (Cours c in selectedCourses)

{

foreach (Student s in selectedStudents){

s.Courses.Add(c);

}

* Get with join but without foreign key

var studentRegistration = from student in context.Students

from course in student.Courses

orderby student.StudentId

select new StudentCourseRegistration

dataGridViewRegistration.DataSource = studentRegistration.ToList();

dataGridViewRegistration.Refresh();

* A private class for displaying custom grid view

private class StudentCourseRegistration

{

[DisplayName("Student ID")]

public int StudentID { get; set; }

# Remove Entity

context.Student.Find(“Jim”).FirstOrDefault()

context.Student.Remove(myStudent)

# GridView

context.Students.Load();

dataGridViewStudents.DataSource= context.Students.Local.ToBindingList();

# update model

enable-migration

update-database

AutomaticMigrationsEnabled = true

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.Entity;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace StudentRegistration

{

public partial class Form1 : Form

{

StudentRegistrationModel context;

public Form1()

{

InitializeComponent();

context = new StudentRegistrationModel();

// if exist, then delete and create again

context.Database.Delete();

context.Database.Create();

addStudentBtn.Click += AddStudentBtn\_Click;

updateBtn.Click += UpdateBtn\_Click;

}

private void UpdateBtn\_Click(object sender, EventArgs e)

{

//get selected data

// dataGridViewStudent.SelectedRows;

List<Student> selectedStudentList = new List<Student>();

foreach (DataGridViewRow row in dataGridViewStudent.SelectedRows)

{

Console.WriteLine(context.Students.Find(row.Cells[0].Value).StudentFirstName);

selectedStudentList.Add(context.Students.Find(row.Cells[0].Value));

}

List<Cours> selectedCourseList = new List<Cours>();

foreach (DataGridViewRow row in dataGridViewCourse.SelectedRows)

{

int courseID = int.Parse(row.Cells[0].Value.ToString());

string departmentID = row.Cells[1].Value.ToString();

Cours selectedCourse = context.Courses.Find(courseID, departmentID);

Console.WriteLine(selectedCourse.CourseName);

selectedCourseList.Add(selectedCourse);

//Console.WriteLine(context.Courses.Find(row.Cells[0].Value));

}

foreach (Cours c in selectedCourseList)

{

foreach (Student s in selectedStudentList)

s.Courses.Add(c);

}

context.SaveChanges();

var courseList = (from student in context.Students

from course in student.Courses

select course.CourseName + " " + student.StudentFirstName).ToList();

foreach(String s in courseList)

{

Console.WriteLine(s.ToString());

}

updateRegistration();

}

private void updateRegistration()

{

// dataGridViewRegistration

var studentRegistration = from student in context.Students

from course in student.Courses

orderby student.StudentId

select new StudentCourseRegistration

{

StudentID = student.StudentId,

StudentFirstName = student.StudentFirstName,

StudentLastName = student.StudentLastName,

DepartmentName = course.Department.DepartmentName,

CourseID = course.CourseId,

CourseName = course.CourseName

};

dataGridViewRegistration.DataSource = studentRegistration.ToList();

dataGridViewRegistration.Refresh();

}

private void AddStudentBtn\_Click(object sender, EventArgs e)

{

// register student

string firstName = firstNameTxt.Text.ToString();

string lastName = lastNameTxt.Text.ToString();

string departmentId = DepartmentList.SelectedItem.ToString();

Student newStudent = new Student

{

StudentFirstName = firstName,

StudentLastName = lastName,

StudentMajor = departmentId

};

context.Students.Add(newStudent);

context.SaveChanges();

updateGridView();

}

private void updateGridView()

{

// upgdate student gridview

dataGridViewStudent.Refresh();

}

private void Form1\_Load(object sender, EventArgs e)

{

seedData();

}

private void updateDepartment()

{

// DepartmentList

var departmentList = from department in context.Departments

select department.DepartmentId;

foreach(String s in departmentList)

{

DepartmentList.Items.Add(s);

}

}

private void seedData()

{

// Seed student

List<Student> students = new List<Student>() {

new Student { StudentFirstName = "Svetlana", StudentLastName = "Rostov", StudentMajor = "CSIS" },

new Student { StudentFirstName = "Claire", StudentLastName = "Bloome", StudentMajor = "ACCT" },

new Student { StudentFirstName = "Sven", StudentLastName = "Baertschi", StudentMajor = "MKTG" },

new Student { StudentFirstName = "Cesar", StudentLastName = "Chavez", StudentMajor = "FINC" },

new Student { StudentFirstName = "Debra", StudentLastName = "Manning", StudentMajor = "CSIS" },

new Student { StudentFirstName = "Fadi", StudentLastName = "Hadari", StudentMajor = "ACCT" },

new Student { StudentFirstName = "Hanyeng", StudentLastName = "Fen", StudentMajor = "MKTG" },

new Student { StudentFirstName = "Hugo", StudentLastName = "Victor", StudentMajor = "FINC" },

new Student { StudentFirstName = "Lance", StudentLastName = "Armstrong", StudentMajor = "MKTG" },

new Student { StudentFirstName = "Terry", StudentLastName = "Matthews", StudentMajor = "CSIS" },

new Student { StudentFirstName = "Eugene", StudentLastName = "Fei", StudentMajor = "FINC" },

new Student { StudentFirstName = "Michael", StudentLastName = "Thorson", StudentMajor = "CSIS" },

new Student { StudentFirstName = "Simon", StudentLastName = "Li", StudentMajor = "CSIS" },

};

context.Students.AddRange(students);

context.SaveChanges();

List<Department> departments = new List<Department>() {

new Department { DepartmentId = "CSIS", DepartmentName = "Computing Studies" },

new Department { DepartmentId = "ACCT", DepartmentName = "Accounting" },

new Department { DepartmentId = "MKTG", DepartmentName = "Marketing" },

new Department { DepartmentId = "FINC", DepartmentName = "Finance" },

};

context.Departments.AddRange(departments);

List<Cours> courses = new List<Cours>() {

new Cours { CourseId = 101, CourseDepartmentId = "CSIS", CourseName = "Programming I"},

new Cours { CourseId = 102, CourseDepartmentId = "CSIS", CourseName = "Programming II" },

new Cours { CourseId = 103, CourseDepartmentId = "ACCT", CourseName = "Accounting I" },

new Cours { CourseId = 104, CourseDepartmentId = "ACCT", CourseName = "Accounting II" },

new Cours { CourseId = 105, CourseDepartmentId = "FINC", CourseName = "Corporate Finance" },

};

context.Courses.AddRange(courses);

context.SaveChanges();

context.Students.Load();

context.Courses.Load();

dataGridViewStudent.DataSource = context.Students.Local.ToBindingList();

dataGridViewCourse.DataSource = context.Courses.Local.ToBindingList();

updateDepartment();

}

private class StudentCourseRegistration

{

[DisplayName("Student ID")]

public int StudentID { get; set; }

[DisplayName("Last Name")]

public string StudentLastName { get; set; }

[DisplayName("First Name")]

public string StudentFirstName { get; set; }

[DisplayName("Course ID")]

public int CourseID { get; set; }

[DisplayName("Course Name")]

public string CourseName { get; set; }

[DisplayName("Department")]

public string DepartmentName { get; set; }

}

}

}