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Written Exam 20170331

Your identity is visible during marking.

Status: Scored

Marks received: 16,75 / 30

You have achieved 55,8% correct.

Assessment:

3

Time limit: 180 minutes

Total permitted attempts: 1 done, 0 remaining

Deadline for submission: 2017-03-31 11:15

Your answer is correct

Correct answer

Your answer is incorrect

Max score is 30 points.

- 40% of max score (12 points) is needed for grade 3.
- 60% of max score (18 points) is needed for grade 4.
- 80% of max score (24 points) is needed for grade 5.

You are not allowed to use the computer for anything else but answering the questions on this page.

Good luck!

What is the difference between *authentication* and *authorization*?

authentication - we just want to know this user belong to our application
authorization - what is user able to do

for example if we have administration page in the application, we will give authorization filter to the controller with defined roles, so only user with this role can access the controller.

Comment from trainer:

"we just want to know this user belong to our application" - No, we want to know which user.

Score: 0.5 (1)

On many websites, it is possible to sign up using an email address and a password of your choice. However, sometimes you forget your password, and you can no longer login. Here are two different solutions to this problem presented:

1. Ask the website to email you your old password.
2. Ask the website to generate a new random password for you, and email you this password.

Of these two solutions, most websites tends to go with solution #2. Why?

security reasons.
second solution is better because if the user was hacked and we give the old password to the user, hacker will still have his password.

Comment from trainer:

If the user login he can probably change his password on his own → Hacker can't use the user's password anymore.

Score: 0.5 (2)

HTTP is a stateless protocol. What does that mean?

Score: 0 (1)

Describe the differences between:

- Symmetric encryption
- Asymmetric encryption
- Hashing

Score: 0 (1)

Explain how an anti forgery token works. Make sure to explain why and when we need them, and motivate how they prevent attackers from using the hacking technique called *cross-site request forgery*.

anti forgery token is send in hidden field in the form while user request the form . This token is send back to the server to validate the request and action that will be processed.

Comment from trainer:

Hidden input field: 1 point.

Score: 1 (4)

In HTTP, what is the difference between the Accept header and the Content-Type header?

Score: 0 (1)

REST is built on HTTP and makes heavily use of the HTTP methods. For each CRUD-operation below, specify which HTTP method one should use.

Note: In some cases mutple different HTTP methods can be used. In these cases, just write one of them.

Note: 0.25 points is awarded for each correct answer.

Create:

Read:

Update:

Delete: (DELETE)

Score: 0.75 (1)

Both cookies and session values can be used to store information about the client. Describe the main differences between them. Is one of them better in some sense? If so, explain why.

cookies is stored in client computer
session is like "cookie in the server". Session is stored in the server. Session have expire time.
Cookies don't have size limit, like "local storage", they can be used for storing non important information.

Comment from trainer:

Cookies do have size limits.

Which one is better?

Score: 1 (2)

Here is an HTML form on a web page one can use to sign in to that web page:

```
<form method="post" action="Members/SignIn">
  Username: <input type="text" name="username">
  Password: <input type="password" name="password">
            <input type="submit" value="Sign in!">
</form>
```

Here is the code on the server handling the HTTP request sent when the form is submitted:

```
public class MembersController : Controller{
  public ActionResult SignIn(string username, string password){
    // Query to be sent to the database to check if password and username are correct.
    var query = "SELECT id FROM members WHERE username = '"+username+"' AND password = '"+password+"' LIMIT 1";
    // Query sent to database, the id of the user is retrieved, etc.
    // ...
  }
}
```

As your answer, write a username and password one can use to login without having created your own account.

Username: <1>
 Password: </ or 1=1>

Comment from trainer:

\ is the escape character, not /

Score: 1.5 (2)

An application can in a general sense be divided in three layers "presentation", "business logic" and "data". How does the MVC architecture match with these three layers? (The alternative "No alternative" can be used as a wild card, not generating any points).

Alternative	Your answer	Correct answer
Model	Data	Business Logic
Model	Business Logic	Data
Controller	Presentation	Presentation
Controller	[No alternative]	[No alternative]
View	Presentation	Presentation
View	[No alternative]	[No alternative]
[No alternative]	Business Logic	Business Logic
[No alternative]	Data	Data

Score: 0 (2)

Which of the following statements is correct concerning the request/response cycle applied to the MVC-architecture?

- ☐ The view is responsible for retrieving the correct data-object from a data-repository
- ☒ The routing system is responsible for finding the correct controller and action-method for a request
- ☐ The routing system uses the razor engine for finding the correct view for a request
- ☐ The controller is responsible for mixing static and dynamically generated HTML which then is passed by the view as a response

Score: 1 (1)

Match the correct return value types for an action method with the appropriate description. ([No alternative] is a wild card for matching incorrect statements, not generating any points).

Alternative	Your answer	Correct answer
ActionResult	This is the main class for declaring a return value from an action method	This is the main class for declaring a return value from an action method
ViewResult	HTML from specified or default view (.cshtml)	HTML from specified or default view (.cshtml)
RedirectToRouteResult	Redirects to a URL, generated by the routing system	Redirects to a URL, generated by the routing system
EmptyResult	Does not return anything	Does not return anything
JsonResult	Returns file-data directly into the response to the browser	[No alternative]
[No alternative]	[No alternative]	Returns file-data directly into the response to the browser

Score: 2 (2)

Which of the following alternatives is correct for the following method:

```
public class HomeController : Controller
{
    public ActionResult Index()
    {
        return View();
    }
}
```

- ☐ The routing system will try to find /Views/Home/Index.cshtml
- ☒ The routing system will try to find Home/Views//Index.cshtml
- ☐ The routing system will try to find /Views/Index/Home.cshtml
- ☐ The routing system will try to find /Views/Action/Index.cshtml

Score: 0 (1)

Describe what an ActionLink is? (What is the purpose with it and how can it be used)

ActionLink is HTML helper that can be use to generate html code.
 @Html.ActionLink("display text", "controller action", "controller name")

Score: 1.5 (2)

What is the purpose of using a strongly typed view?

- ☒ An object is passed to the view and the view may use properties, public fields and methods of this object.
- ☐ Only a strongly typed view is allowed to use razor code to dynamically develop the HTML-code.
- ☐ A strongly typed view can share its layout with several other views.
- ☐ A strongly typed view is, in contrast to a partial view, not dependent on another view.

Score: 1 (1)

What benefits are there of using a layered architecture such as the MVC-architecture?

- different part of the architecture are responsible only for one think in the application;
- MVC architecture provides ability many developers to work in the same project;
- Makes code more readable,
- Source code is easy to manage,

Score: 2 (2)

Assume the following line will be sent from a view:

@Html.ActionLink("Happy New Year", "ShowNewYearGreeting", "Home", new { id = Convert.ToString(DateTime.Now.Year) }, null)

How will the information be provided in the HTTP request?

/Home/ShowNewYearGreeting/2017

Score: 1 (1)

DbContext uses several different types of loading schemes to load related data into an object. Pair the correctly named loading schemes with the correct description. (The alternative "No alternative" can be used as a wild card, not generating any points).

Alternative	Your answer	Correct answer
Lazy loading	needed. However it is loaded on demand using the entry method. The navigation property of the entity class should not be set as	The ORM will automatically load the related data when it is being accessed. It requires that the entity class is public and not sealed and that the navigation property is set to virtual.
	load the related data when it is being accessed. Data is loaded one batch	The programmer tells ORM when to load the referenced data. The navigation

Eager loading	at a time. Batch-sizes are specified with the semibatch method. It requires that the entity class is public and not sealed and that the navigation	the referenced data. The navigation property of the entity class should not be set as virtual. Uses the Include method to tell which referenced data to load.
Explicit loading	The programmer tells ORM when to load the referenced data. The navigation property of the entity class should not be set as virtual. Uses the Include method to tell which referenced data to load.	Referenced data is loaded later when needed. However it is loaded on demand using the entry method. The navigation property of the entity class should not be set as virtual.
Semispecific loading	related data when it is being accessed. It requires that the entity class is public and not sealed and that the navigation property is set to	[No alternative]
[No alternative]	[No alternative]	The ORM will semi-automatically load the related data when it is being accessed. Data is loaded one batch at a time. Batch-sizes are specified with the semibatch method. It requires that the entity class is public and not sealed and that the navigation property is set to virtual.

Score: 1.5 (1.5)

Describe the "Post-Redirect-Get" pattern and the problem it solves.

Solves posting non wanted data back to server or duplicates the information we collect/process.

For example if we request form (GET), fill up the form and press button to send (POST), our data will be send to the server, so if we refresh or press the button again form data will be send again.

We can solve this problem with "Post-Redirect-Get" pattern. As the pattern name says we solve it with redirecting the user, not necessary to redirect it to another page we can just redirect it to the same page to access the GET header.

Score: 1.5 (1.5)