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Ans. to the q. no 1(a)

ASP.NET framework support cross-language interoperability - because ASP.NET framework supports C#, VB.NET, F#, R etc. They have common language specifications, can exchange data type, ~~CTS~~; .NET Compiler platform supports all these language and turn them into EXE or .DLL files in intermediate language (IL) (MSIL / IL / CIL etc).

ASP.NET also supports ~~many~~ cross-platform deployment. ~~Because~~ ASP.NET supports many languages & compilers. Those compilers turn the code into .exe or .dll file in IL/CIL and (P.T.O)

other metadata. If we can take this metadata and .exe or .dll files and again compile them on any CLR (JIT) compiler to platform Native code ; then we can run ASP.NET code on any platform, providing that, platform has CLR and Common Runtime engine for ASP.NET deployment.

ASP.Net is also open source .CLR, FCL , XML and many languages like C#, C++, JScript, HTML can be used to make cross platform apps

Ans. to the q. no- 1 (b)

Two justifications for using two different web servers in Out of process hosting:

- ① Kestrel is used as an internal webserver and IIS as the external webserver.
- ② And IIS, Apache, Nginx contains a lot of advanced feature - advanced logging CrUI, failed request tracing, easy to configure and log, easy troubleshooting and debugging.

Two reasons for selecting Kestrel web server:

- ① Kestrel as an Edge server, Kestrel is the cross-platform web server for ASP.NET core application.
- ② We can use the Kestrel web server as the Internet facing web server to directly process HTTP requests.

Ans. to the q. no- 1 (c)

Instance variables are NonStatic variables of a class. We can and we have to make objects of that class. When we create objects, memory is allocated for that variable, and we can access that variable by memory address created on code section. Instance variables will be allocated into heap memory for different objects differently. We can access and work those objects and manipulate them.

On the other hand, class variables are static variables. We can not make different object with a static variable. Class variable or static variable are fixed memory allocated on the code section. We can not ~~allocate~~ allocate a different memory in the heap, for a fixed memory on the code section.

Instance / non static variables are like local variables, they can be only accessed by object of a class. They are declared in the class, but outside of any method.

Class variables ~~are~~ are static variables shared among all the objects of the class, so no need to declare any new object / instance.

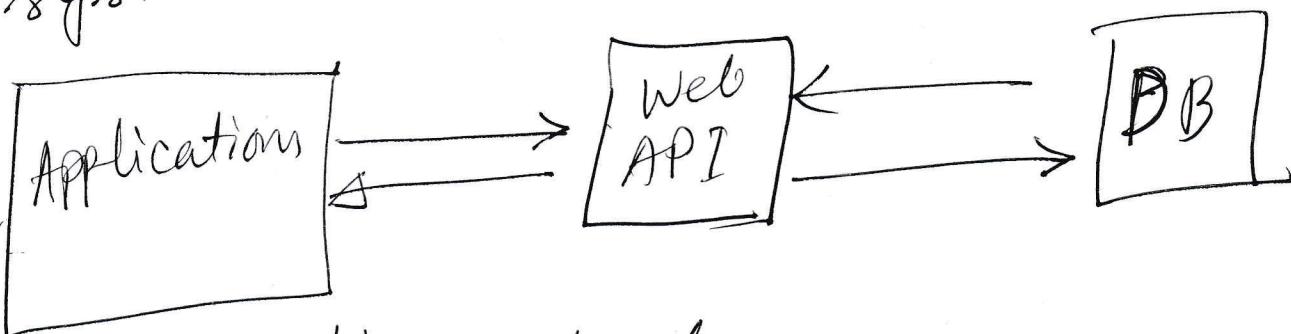
Ans. to the q. no-3 (a)

Using System;

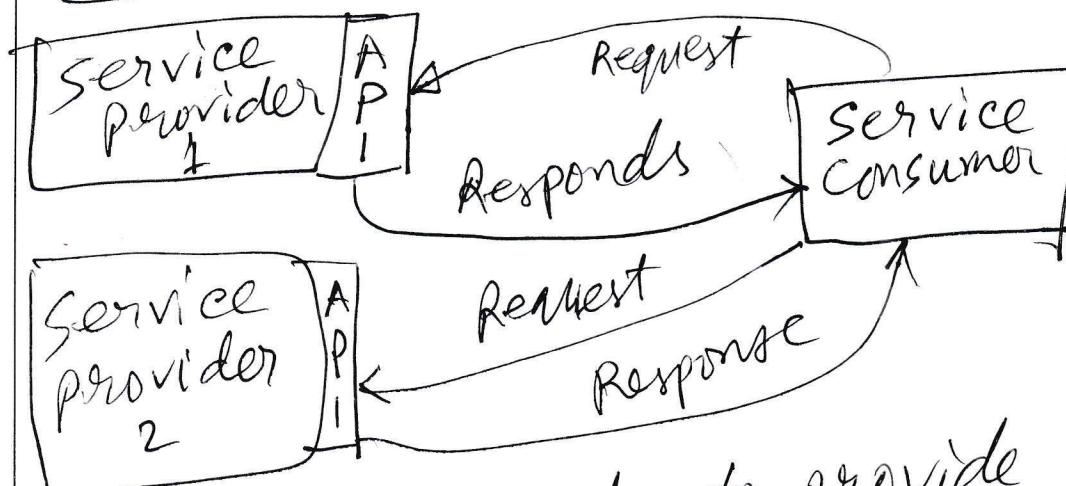
```
namespace 3a {
    public delegate string DLRs (string STR);
    /*public class Answer Program {
        public static string Replace (String S)
        {
            -- -- -- -- -- // This is to be
            replaced
        }
    }*/
    public class Test {
        public static void main (String [] args) {
            String S = "Hello ";
            DLRs dLrs = (String STR) =>
            {
                Console.WriteLine ("Replacing Space with hyphen");
                return S.Replace (" ", "-");
            };
            Console.WriteLine (dLrs (S));
        }
    }
}
```

Ans. to the q. no-1(d)

Web API: Stands for application programming interface, also known as web services. They interact between systems and exchange information.



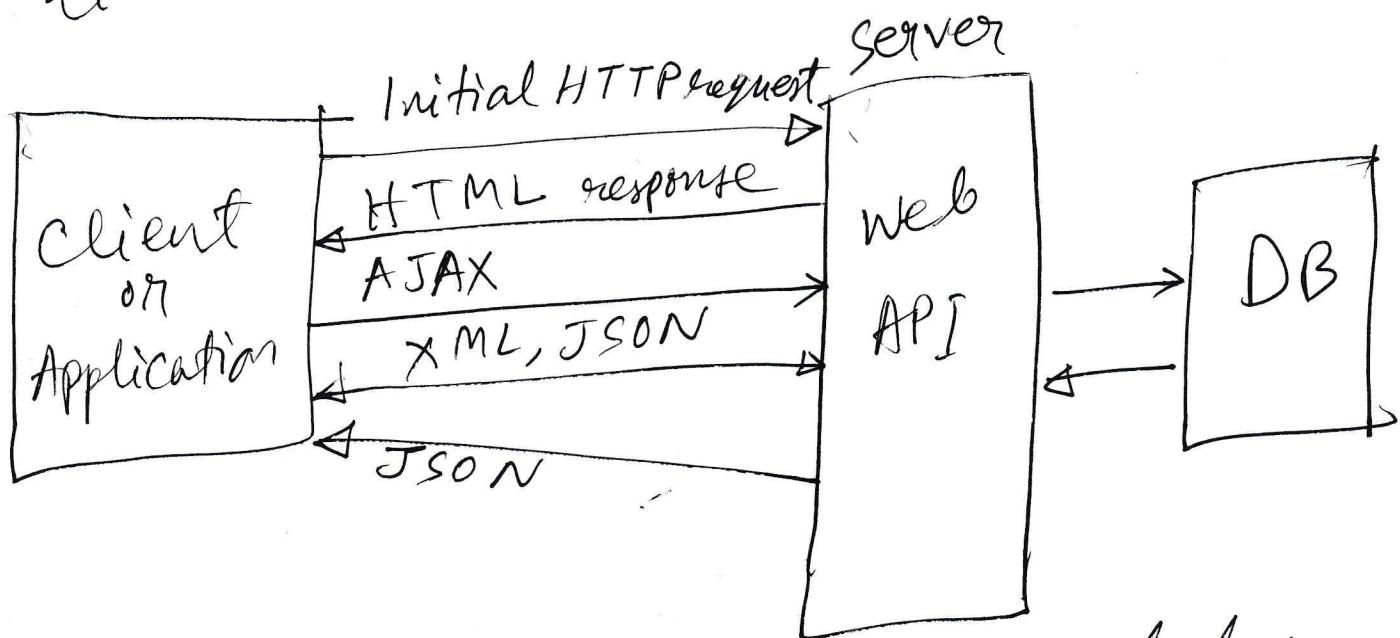
API Working method:



API is used to provide interface between website and client and to access database.

(P.T.O)

~~for~~ For an SPA, Web API will be like this



Web form allows building modular pages out of components with UI. They were also used to interact with the underlying HTTP connections & webservers via core objects.

Ans to the q.no-3(a)

Q Using System;

namespace Indexer {

class Employee

{ private string[] emplAddrs = new string
[int-size]

static public int int-size=11;

:public Employee (int size) {

for(int i=0; i< size; i++)

{ empl Addrs[i] = "N/A"; }

}

Public string this (int index){

get { string tmp;

if (index >= 0 & index <= int-size)

{ tmp = emplAddrs[index]; }

else tmp = " ";

return tmp; }

(P.T.O)

```
set { if(index>=0 && index<=int_size-1)
    { emplAddress[index] = value; }

}
{
}
```

```
class Exam {
    public static void main() {
        employee    emplAddress = new Employee(11);
        emplAddress[0] = "Dhaka";
        emplAddress[1] = "Khulna";
        emplAddress[2] = "Sylhet";
        for(int i=0; i<Employee.int_size; i++)
            { console.WriteLine(emplAddress[i]); }
        string adr = emplAddress[0];
        console.WriteLine(adr); }
```

Ans to the q. no-2

	.Net Framework	.Net core	ASP.NET core
System.Web	Strong	Strong	Strong
Nuget Package	Strong	Strong	
IIS Express	Strong	Mild	Mildly
OWIN		Mild Strong	Mildly
Web Form	Strongly	Mild	Mildly