Branch coverage:

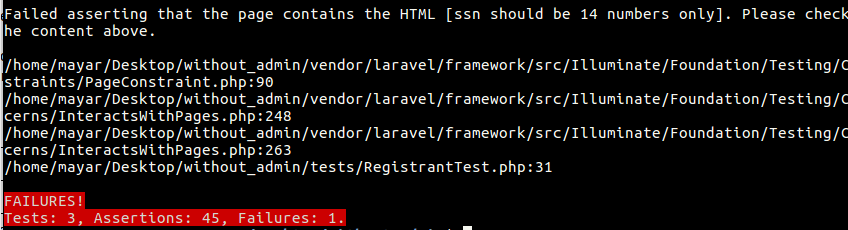
Registrant controller:

1- registration function:

Test cases:

|  |  |
| --- | --- |
| Input | EO |
| **New registrant**  Name= “mohamed” email= 'mohamed@gmail.com'  Ssn=12312512312311  Address=’haram’ phone\_number=01065518447 | Registration successful |
| **Another registrant has the same email**  Name=’mohamed’  Email=’salma@gmail.com’  Ssn=12312382312511  Address=’haram’  Phone\_number=01063518447 | This email belongs to another ssn |
| **Registered in the same course before**  Name=’salma’  Email=’salma@gmail.com’  Ssn=12312312312311  Address=haram  Phone\_number=01065518447 | You are already registered to this course |
| **Ssn larger than 14 numbers (invalid input)**  Name=1234  Email=mohamed@gmail.com’  Ssn= 1231231231231199  Address=haram  Phone\_number=mm | Ssn should be 14 numbers only  Name shouldn’t be numeric  Phone number must be a number |

**Execution**: failure in test case 4



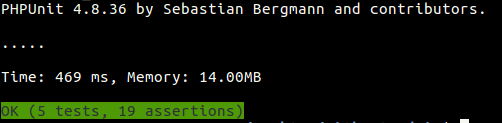
==============================================================

2- Add Review Function

Test cases:

|  |  |
| --- | --- |
| Input | EO |
| **Invalid course id**  Course Id=-1  Code=222  Review= ‘my review’ | Redirect back to home page |
| **Empty review**  Course Id=2  Code=12345  Review=’’ | The review field is required |
| **Registrant confirmed**  Course Id=2  Code= e39d565  Review=’ this course was great’ | Review Added successfully |
| **Registrant not confirmed**  Course Id=2  Code= 06e47c6  Review=’ this course was great’ | your registration isn't confirmed yet to add a review |
| **Not registered in this course**  Course Id=2  Code= 12345  Review=’ this course was great’ | you aren't registered in this course |

**Execution: no failures**

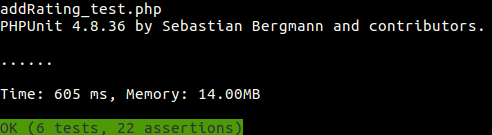


3-Add rating function:

Test cases:

|  |  |
| --- | --- |
| Input | EO |
| **Invalid course id**  Course Id=-1  Code=’222’  Rating=’12’ | Redirect back to home page |
| **Empty rating**  Course id= 2  Code=’222’  Rating=’’ | The rating field is required |
| **Registrant confirmed and hasn’t rated before**  Course id= 2  Code=’cda5b5c’  Rating=2.5 | Rating Added successfully |
| **Registrant confirmed but already rated**  Course id =2  Code= e39d565  Rating=3.5 | your already rated this course |
| **Registrant not confirmed**  Course id= 2  Code= 06e47c6  Rating=2 | your registration isn't confirmed yet to rate |
| **Not registered in this course**  Course id =2  Code=12345  Rating=4 | you aren't registered in this course |

**Execution: no failures**



###########################################################################

Logic Coverage: (RACC)  
1- Registration function:

Predicates:

* $this->validate (), always active

|  |  |  |
| --- | --- | --- |
| $this->validate() | Input | Expected output |
| True | Successful registration input | Registration successful |
| False | SSN >14 digits | Ssn should be 14 digits |

* ($regist!=**null** && $regist->**ssn**!=$req->**ssn**) reachability:validate is true  
  Using shortcut for cnf form

|  |  |  |  |
| --- | --- | --- | --- |
| $regist!=**null** | $regist->**ssn**!=$req->**ssn** | Input | Expected output |
| True | True | Adding same email with different ssn than the one in the database | This email belongs to another ssn |
| False | True | New registration | Registration successful |
| True | False | Already registered in the same course | You are already registered in this course |

* ($regist===**null**) reachability: p2 is true

|  |  |  |
| --- | --- | --- |
| $regist===**null** | Input | Expected output |
| True | New registrant( not registered in any other course) | Registration successful |
| False | Already registered | You are already registered in this course |

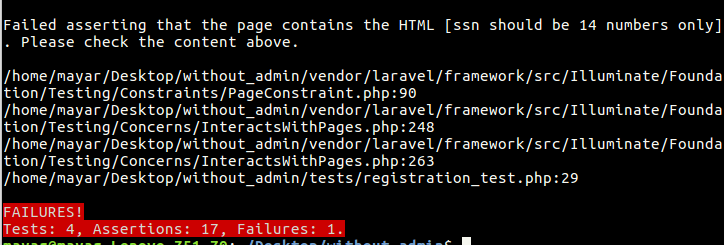
* ($course\_reg==**null**) reachbility: p2 is false

|  |  |  |
| --- | --- | --- |
| $course\_reg===**null** | Input | Expected output |
| True | New registration (wether registered for another course or not) | Registration successful |
| False | Already registered | You are already registered in this course |

Minimal test case to satisfy RACC coverage -->same as branch coverage

|  |  |
| --- | --- |
| input | Expected output |
| **New successful registration (not in database before)**  Name= “mohamed” email= 'mohamed@gmail.com'  Ssn=12312512312311  Address=’haram’ phone\_number=01065518447 | Registration successful |
| **Invalid input (ssn<14)**  Name=1234  Email=mohamed@gmail.com’  Ssn= 1231231231231199  Address=haram  Phone\_number=mm | Ssn length should be <14 |
| **Adding same email with different ssn than the one in the database**  Name=’mohamed’  Email=’salma@gmail.com’  Ssn=12312382312511  Address=’haram’  Phone\_number=01063518447 | This email belongs to a different ssn |
| **Already registered in the course**  Name=’salma’  Email=’salma@gmail.com’  Ssn=12312312312311  Address=haram  Phone\_number=01065518447 | You are already registered in this course |

**Execution: failure in test case 2**



2-Add review function

Predicates:

* $this->validate

|  |  |  |
| --- | --- | --- |
| $this->validate | Input | Expected output |
| True | Successful review | Review added successfully |
| False | Empty review | The review field is required |

* (!**empty**($course)), reachability : p1=true

|  |  |  |
| --- | --- | --- |
| (!**empty**($course)) | Input | Expected output |
| True | Successful review | Review added successfully |
| False | Course id=-1 | Redirect back |

* (Hash:*check*($req->**code**,$reg->**code**)) reachability: p2=true

|  |  |  |
| --- | --- | --- |
| (Hash::*check*($req->**code**,$reg->**code**)) | Input | Expected output |
| True | Code matches one of the registrants of the course | Review added successfully |
| False | Code doesn’t match any registrant | You aren’t registered in this course |

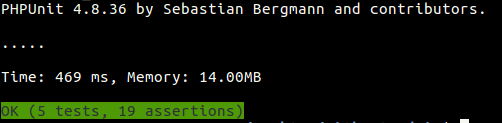
* (!$reg->**confirmed**) reachability: p3 true

|  |  |  |
| --- | --- | --- |
| (!$reg->**confirmed**) | Input | Expected output |
| True | Code matches but not confirmed | You aren’t confirmed to add a review |
| False | Code matches and is confirmed | Review added sucessfully |

Minimal test case to satisfy RACC:

|  |  |
| --- | --- |
| Input | Expected output |
| **Successful review**  Course Id=2  Code= e39d565  Review=’ this course was great’ | Review added successfully |
| **Course code not valid**  Course Id=-1  Code=222  Review= ‘my review’ | Redirect back |
| **Empty review field**  Course Id=2  Code=12345  Review=’’ | Review field is required |
| **Code doesn’t match any registrant**  Course Id=2  Code= 12345  Review=’ this course was great’ | You aren’t registered in this course |
| **Code matches but not confirmed**  Course Id=2  Code= 06e47c6  Review=’ this course was great’ | You aren’t confirmed to add a review |

**Execution: no failures**



3- Add rating function

Exactly the same with one additional predicate:

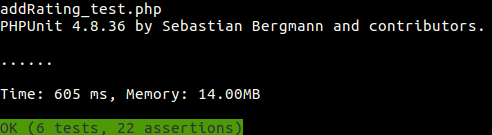
($user\_ratings !=0) reachbility: confirmed=true

|  |  |  |
| --- | --- | --- |
| ($user\_ratings !=0) | Input | Expected output |
| True | Successful registration | Rate successfult |
| False | Already rated the course | You already rated |

Minimal test case

|  |  |
| --- | --- |
| Input | Expected output |
| **Successful rating**  Course id= 2  Code=’cda5b5c’  Rating=2.5 | Rating added successfully |
| **Course id not valid**  Course Id=-1  Code=’222’  Rating=’12’ | Redirect back |
| **Empty rating field**  Course id= 2  Code=’222’  Rating=’’ | rating field is required |
| **Code doesn’t match any registrant**  Course id =2  Code=12345  Rating=4 | You aren’t registered in this course |
| **Code matches but not confirmed**  Course id= 2  Code= 06e47c6  Rating=2 | You aren’t confirmed to add a rating |
| **User already rated the course**  Course id =2  Code= e39d565  Rating=3.5 | You already rated |

**Execution: no failures**

****

**Logic coverage on specifications (preconditions**)

**Registration function :**

All fields are required, name doesn’t contain numbers, email of valid format, national id consists of numbers only , national id is 14 digits , phone number consists of numbers only, phone number is 11 digits, name is less than 100 characters, course id is a positive integer

Predicate: !empty(name) ^ !empty (email) ^ !empty( ssn) ^ !empty(address) ^ !empty(phone number) ^ !numeric(name) ^ valid\_format(email) ^ len(ssn) =14 ^ len(name)<100 ^len(phone number)=11 ^ numeric(ssn) ^ numeric(phone number) ^ integer(course id) ^ greater\_than\_zero(course id)

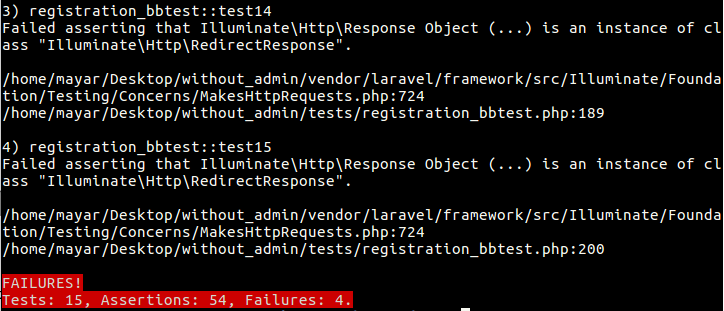
RACC COVERAGE:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a | b | c | d | e | f | g | h | i | j | k | L | m | n |
| T | T | T | T | T | T | T | T | T | T | T | T | T | T |
| F | T | T | T | T | T | T | T | T | T | T | T | T | T |
| T | F | T | T | T | T | T | T | T | T | T | T | T | T |
| T | T | F | T | T | T | T | T | T | T | T | T | T | T |
| T | T | T | F | T | T | T | T | T | T | T | T | T | T |
| T | T | T | T | F | T | T | T | T | T | T | T | T |  |
| T | T | T | T | T | F | T | T | T | T | T | T | T | T |
| T | T | T | T | T | T | F | T | T | T | T | T | T | T |
| T | T | T | T | T | T | T | F | T | T | T | T | T | T |
| T | T | T | T | T | T | T | T | F | T | T | T | T | T |
| T | T | T | T | T | T | T | T | T | F | T | T | T | T |
| T | T | T | T | T | T | T | T | T | T | F | T | T | T |
| T | T | T | T | T | T | T | T | T | T | T | F | T | T |
| T | T | T | T | T | T | T | T | T | T | T | T | F | T |
| T | T | T | T | T | T | T | T | T | T | T | T | T | F |

Test cases:

|  |  |
| --- | --- |
| Input | Expected output |
| **All valid inputs**  Course id=3  Name=’omar ahmed’  Email=’ [omar23@gmail.com](mailto:omar23@gmail.com)’  Ssn=1231291289231199  Address==’haram’  Phone\_number=01282340938 | Registration successful |
| **Empty name**  Course id=3  Name=’’  Email=’ [omar23@gmail.com](mailto:omar23@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number=01282340938 | The ame field is required |
| **Empty email**  Course id=3  Name=’omar’  Email=’’  Ssn= 1231231289231199  Address==’haram’  Phone\_number=01282340938 | The email field is required |
| **Empty ssn**  Course id=3  Name=’omar’  Email=’ [mayar@gmail.com](mailto:mayar@gmail.com)’  Ssn=  Address==’haram’  Phone\_number=01282340938 | The ssn field is required |
| **Empty address**  Course id=3  Name=’omar’  Email=’ [mayar@gmail.com](mailto:mayar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number=01282340938 | The Address field is required |
| **Empty phone number**  Course id=3  Name=’omar’  Email=’ [mayar@gmail.com](mailto:mayar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number= | The phone number field is required |
| **Numeric name**  Course id=3  Name= ‘1234dd’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number= 01282340938 | The name format is invalid |
| **len(ssn)=12**  Course id=4  Name= ‘omar  Email=’ [omarahmed@gmail.com](mailto:omarahmed@gmail.com)’  Ssn= 12923  Address==’haram’  Phone\_number= 01282340938 | The ssn must be 14 characters |
| **Ssn contains letters**  Course id=3  Name= ‘omar  Email=’ omarahmedmahmoud@gmail.com’  Ssn= ‘bla bla’  Address==’haram’  Phone\_number= 01282340938 | The ssn must be a number |
| **Phone number contains letters**  Course id=3  Name= ‘omar  Email=’ omarahmedma@gmail.com’  Ssn= ‘012823409383’  Address== 01ma  Phone\_number= 01282340938 | The phone number must be a number |
| **Invalid email**  Course id=3  Name= ‘omar  Email=’ omarahmdmahgmailm’  Ssn= ‘012823409383’  Address== 01ma  Phone\_number= 01282340938 | The email must be a valid email address |
| **len(name)>100**  Course id=3  Name= ‘mayar ahmed mahmoud hefny mostafa hassan kareem mayar nahla ahmed maya maya kareem ahmed mahmoud hefny msostafa’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number= 01282340938 | The name may not be greater than 100 characters. |
| **len(phone number)=13**  Course id=3  Name= ‘omar  Email=’ omarahmedmahmoud@gmail.com’  Ssn= 01282340938883  Address==’haram’  Phone\_number= 0128234093888553 | The phone number must be 11 characters |
| **Non integer course id**  Course id = c  Name=’omar ahmed’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 12312312312311  Address==’haram’  Phone\_number= 01066518447 | Redirect back without registration |
| **Negative course id**  Course id = -1  Name=’omar ahmed’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 12312312312311  Address==’haram’  Phone\_number= 01066518447 | Redirect back without registration |

**Execution: 4 failures**



**Add review function**

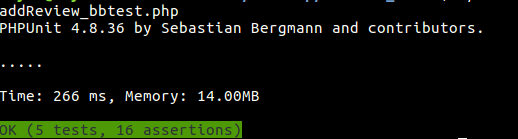
Preconditions: review field is required and code field is required

Predicate : !empty(review) ^ !empty(code) ^ integer (course\_id) ^ positive (course\_id)

RACC coverage:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Clause a | Clause b | Clause c | Clause d | input | Expected out |
| T | T | T | T | **Valid inputs**  Course id= 2  Code= e39d565  Review=’ this course was great’ | Review added successfully |
| F | T | T | T | **Empty review**  Course id= 2  Code= 12345  Review=’’ | The review field is required |
| T | F | T | T | **Empty code**  Course id= 2  Code=’’  Review=’ this course was great’ | The code field is required |
| T | T | F | T | **Non integer course id**  Course id= c  Code=222  Review=’ this course was great’ | Redirect back without adding review |
| T | T | T | F | **Negative course id**  Course id= -1  Code=222  Review=’ this course was great’ | Redirect back without adding review |

**Execution: no failures**

****

**Add rating function**

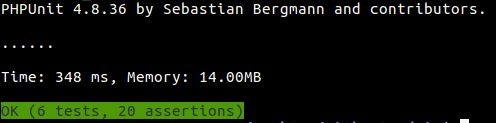
Preconditions: rating field is required, code field is required, rating must be a number

Predicate: !empty(rating) ^ !empty(code) ^ numeric (rating) ^ integer (course\_id) ^ positive (course\_id)

RACC coverage:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Clause a | Clause b | C | D | E | input | Expected out |
| T | T | T | T | T | **s** | rating added successfully |
| F | T | T | T | T | **Empty rating**  Course id =2  Code= 12345  Rating=’’ | The rating field is required |
| T | F | T | T | T | **Empty code**  Course id =2  Code= ‘’  Rating=2.5 | The code field is required |
| T | T | F | T | T | **Rating is a letter**  Course id =2  Code= cda5b5c  Rating=’mm’ | The rating must be a number |
| T | T | T | F | T | **Non integer course id**  Course id =c  Code= 222  Rating=3 | Redirect back without adding review |
| T | T | T | T | F | **Negative course id**  Course id =-1  Code= 222  Rating=5 | Redirect back without adding  review |

**Execution: no failures**



**Input space partitioning: base choice**

1-Registration:

Applying interface based partitioning

\*bold is the base choice

|  |  |  |  |
| --- | --- | --- | --- |
| characteristic | blocks | | |
| a-Name is empty | True | **False** |  |
| b-Name is a number | True | **False** |  |
| c-Name size | **<=100** | >100 |  |
| d-Address is empty | True | **False** |  |
| e-Phone number is empty | True | **False** |  |
| f-Phone number size | <11 | **=11** | >11 |
| g-Phone number is an integer | **True** | False |  |
| h-Email is empty | True | **False** |  |
| i-Email format | **valid** | Not valid |  |
| j-Ssn is empty | True | **False** |  |
| k-Ssn is an integer | **True** | False |  |
| l-Ssn size | <14 | **=14** | >14 |
| m-Course id is an integer | **True** | False |  |
| n-Course id relation to zero | <=0 | **>0** |  |

**Base choice coverage requirements**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| char | a | b | c | d | e | f | g | h | i | j | k | l | m | n |
|  | F | F | <=100 | F | F | =11 | T | F | valid | F | T | =14 | T | >0 |
|  | F | F | <=100 | F | F | =11 | T | F | valid | F | T | =14 | T | **<=0** |
|  | F | F | <=100 | F | F | =11 | T | F | valid | F | T | =14 | **F** | >0 |
|  | F | F | <=100 | F | F | =11 | T | F | valid | F | T | **<14** | T | >0 |
|  | F | F | <=100 | F | F | =11 | T | F | valid | F | T | **>14** | T | >0 |
|  | F | F | <=100 | F | F | =11 | T | F | valid | F | **F** | =14 | T | >0 |
|  | F | F | <=100 | F | F | =11 | T | F | valid | **T** | T | =14 | T | >0 |
|  | F | F | <=100 | F | F | =11 | T | F | **invalid** | F | T | =14 | T | >0 |
|  | F | F | <=100 | F | F | =11 | T | **T** | valid | F | T | =14 | T | >0 |
|  | F | F | <=100 | F | F | =11 | **F** | F | valid | F | T | =14 | T | >0 |
|  | F | F | <=100 | F | F | **<11** | T | F | valid | F | T | =14 | T | >0 |
|  | F | F | <=100 | F | F | **>11** | T | F | valid | F | T | =14 | T | >0 |
|  | F | F | <=100 | F | **T** | =11 | T | F | valid | F | T | =14 | T | >0 |
|  | F | F | <=100 | **T** | F | =11 | T | F | valid | F | T | =14 | T | >0 |
|  | F | F | **>100** | F | F | =11 | T | F | valid | F | T | =14 | T | >0 |
|  | F | **T** | <=100 | F | F | =11 | T | F | valid | F | T | =14 | T | >0 |
|  | **T** | F | <=100 | F | F | =11 | T | F | valid | F | T | =14 | T | >0 |

Test cases:

|  |  |
| --- | --- |
| Input | Expected output |
| **All valid inputs**  Course id=3  Name=’omar ahmed’  Email=’ [omar23@gmail.com](mailto:omar23@gmail.com)’  Ssn=1231291289231199  Address==’haram’  Phone\_number=01282340938 | Registration successful |
| **Empty name**  Course id=3  Name=’’  Email=’ [omar23@gmail.com](mailto:omar23@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number=01282340938 | Name field is required |
| **Empty email**  Course id=3  Name=’omar’  Email=’’  Ssn= 1231231289231199  Address==’haram’  Phone\_number=01282340938 | Email field is required |
| **Empty ssn**  Course id=3  Name=’omar’  Email=’ [mayar@gmail.com](mailto:mayar@gmail.com)’  Ssn=  Address==’haram’  Phone\_number=01282340938 | Ssn field is required |
| **Empty address**  Course id=3  Name=’omar’  Email=’ [mayar@gmail.com](mailto:mayar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number=01282340938 | Address field is required |
| **Empty phone number**  Course id=3  Name=’omar’  Email=’ [mayar@gmail.com](mailto:mayar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number= | Phone number field is required |
| **Numeric name**  Course id=3  Name= ‘1234dd’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number= 01282340938 | Name can’t be numeric |
| **len(ssn)=12**  Course id=4  Name= ‘omar  Email=’ [omarahmed@gmail.com](mailto:omarahmed@gmail.com)’  Ssn= 12923  Address==’haram’  Phone\_number= 01282340938 | Ssn must be 14 digits |
| **Ssn contains letters**  Course id=3  Name= ‘omar  Email=’ omarahmedmahmoud@gmail.com’  Ssn= ‘bla bla’  Address==’haram’  Phone\_number= 01282340938 | Ssn must be numeric |
| **Phone number contains letters**  Course id=3  Name= ‘omar  Email=’ omarahmedma@gmail.com’  Ssn= ‘012823409383’  Address== 01ma  Phone\_number= 01282340938 | Phone numbers must be numeric |
| **Invalid email**  Course id=3  Name= ‘omar  Email=’ omarahmdmahgmailm’  Ssn= ‘012823409383’  Address== 01ma  Phone\_number= 01282340938 | Email format is invalid |
| **len(name)>100**  Course id=3  Name= ‘mayar ahmed mahmoud hefny mostafa hassan kareem mayar nahla ahmed maya maya kareem ahmed mahmoud hefny msostafa’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 1231231289231199  Address==’haram’  Phone\_number= 01282340938 | Name must be smaller than 100 characters |
| **len(phone number)=13**  Course id=3  Name= ‘omar  Email=’ omarahmedmahmoud@gmail.com’  Ssn= 01282340938883  Address==’haram’  Phone\_number= 0128234093888553 | Phone number must be 11 digits |
| **Non integer course id**  Course id = c  Name=’omar ahmed’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 12312312312311  Address==’haram’  Phone\_number= 01066518447 | Redirect back without registration |
| **Negative course id**  Course id = -1  Name=’omar ahmed’  Email=’ [omar@gmail.com](mailto:omar@gmail.com)’  Ssn= 12312312312311  Address==’haram’  Phone\_number= 01066518447 | Redirect back without registration |
| **Ssn size >14**  Course id =4  Name=’omar’  Email=’ [omarahmed@gmail.com](mailto:omarahmed@gmail.com)’  Ssn= 1292323451234123  Address==’haram’  Phone\_number=01282340938 | The ssn must be 14 characters |
| **Phone number <11**  Course id =3  Name=’omar’  Email=’ omarahmedmahmoud@gmail.com’  Ssn= 01282340938883  Address==’haram’  Phone\_number= 01282343 | The phone number must be 11 characters |

**Execution: 6 failures**



2- Add review

|  |  |  |  |
| --- | --- | --- | --- |
| characteristic | blocks | | |
| A-rating is empty | True | **False** |  |
| B-code is empty | True | **False** |  |
| c-Course id is an integer | **True** | False |  |
| d-Course id relation to zero | <=0 | **>0** |  |
| E-rating is a number | **True** | False |  |
| F-rating relation to 0 | <0 | **>=0 and <=5** | >5 |

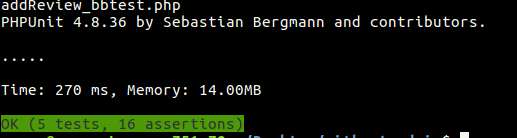
**Base choice coverage requirements**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| char | a | b | c | d | e | f |
|  | F | F | T | >0 | T | >=0 and <=5 |
|  | **T** | F | T | >0 | T | >=0 and <=5 |
|  | F | **T** | T | >0 | T | >=0 and <=5 |
|  | F | F | **F** | >0 | T | >=0 and <=5 |
|  | F | F | T | **<=0** | T | >=0 and <=5 |
|  | F | F | T | >0 | **F** | >=0 and <=5 |
|  | F | F | T | >0 | T | **<0** |
|  | F | F | T | >0 | T | **>5** |

Test cases:

|  |  |
| --- | --- |
| input | Expected out |
| **Valid inputs**  Course id= 2  Code= e39d565  Review=’ this course was great’ | Review added successfully |
| **Empty review**  Course id= 2  Code= 12345  Review=’’ | Review field is required |
| **Empty code**  Course id= 2  Code=’’  Review=’ this course was great’ | Code field is required |
| **Non integer course id**  Course id= c  Code=222  Review=’ this course was great’ | Redirect back without adding review |
| **Negative course id**  Course id= -1  Code=222  Review=’ this course was great’ | Redirect back without adding review |

**Execution:no failures**

****

2- Add rating

|  |  |  |  |
| --- | --- | --- | --- |
| characteristic | blocks | | |
| A-review is empty | True | **False** |  |
| B-code is empty | True | **False** |  |
| c-Course id is an integer | **True** | False |  |
| d-Course id relation to zero | <=0 | **>0** |  |

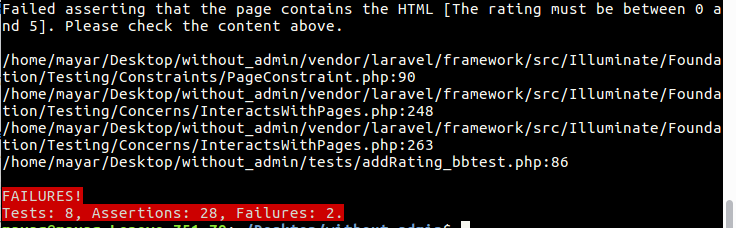
**Base choice coverage requirements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| char | a | b | c | d |
|  | F | F | T | >0 |
|  | **T** | F | T | >0 |
|  | F | **T** | T | >0 |
|  | F | F | **F** | >0 |
|  | F | F | T | **<=0** |

Test cases:

|  |  |
| --- | --- |
| input | Expected out |
| **Valid inputs**  Course id =2  Code= cda5b5c  Rating=2.5 | rating added successfully |
| **Empty rating**  Course id =2  Code= 12345  Rating=’’ | rating field is required |
| **Empty code**  Course id =2  Code= ‘’  Rating=2.5 | Code field is required |
| **Rating is a letter**  Course id =2  Code= cda5b5c  Rating=’mm’ | Rating must be numeric |
| **Non integer course id**  Course id =c  Code= 222  Rating=3 | Redirect back without adding review |
| **Negative course id**  Course id =-1  Code= 222  Rating=5 | Redirect back without adding  review |
| **Rating <0**  Course id =2  Code= cda5b5c  Rating=-1 | Rating must be between 0 and 5 |
| **Rating >5**  Course id =2  Code= cda5b5c  Rating=12 | Rating must be between 0 and 5 |

**Execution: 2 failures**



**Course Controller:**

*Search Public*

**Black box Specs:**

Input: Search field -> non-empty string

Base Choice Characteristics: empty (True, false)

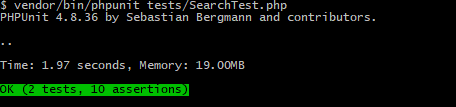
Logic Predicate: SearchField ! empty

|  |  |  |
| --- | --- | --- |
| Coverage Criteria | Test Requirement | Test Case |
| Logic Coverage | infeasible | Infeasible |
| Branch Coverage | Valid request | T1 |
|  | Invalid request | T2 |
| Logic Coverage | P = [True] | T1 |
|  | P = [False] | T2 |
| Base Choice Coverage | [True] | T2 |
|  | [False] | T1 |

Notes: For these test cases, there should be at least one course in the data base.

e.g. Course {Category= “soft skills”, name= “Management”}

|  |  |  |  |
| --- | --- | --- | --- |
| Test Case | Input | Expected Output | Results |
| 1 | Search field = “Management” | Management Course Page | Passed |
| 2 | Search field = “” | “The name field is required” | Passed |

**

*Course Description*

**Black box specs:**

Inputs: course id -> non-empty, integer, number, greater than zero.

Logic Coverage: (C1, C2, C3) = (non-empty && integer && greater than zero)

Base choice:

Characteristics:

0: Number: true, false => (2,a)

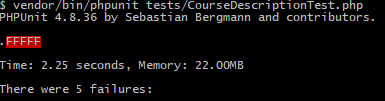
1: integer: integer, notInteger => (2,0.5)

2: Empty: true, false => (‘’,2)

3: Compared to zero: negative, zero, positive => (-1,0,2)

|  |  |  |
| --- | --- | --- |
| Coverage Criteria | Test Requirement | Test Case |
| Logic Coverage | Infeasible | Infeasible |
| Branch Coverage | Cover the only one branch | T1 |
| Base Choice | Base:  [number, integer, not empty, positive] | T1 |
|  | [number, integer, not empty, positive] (Infeasible)  => [notNumber, not empty] | T2 |
|  | [number, float, not empty, positive] | T3 |
|  | [number, integer, empty, positive] (infeasible)   * [empty] | T4 |
|  | [number, integer, not empty, negative] | T5 |
|  | [number, integer, not empty, zero] | T6 |
| Black box: Logic coverage | [T,T,T] | T1 |
|  | [F,T,T] | Infeasible |
|  | [T,F,T] | T3 |
|  | [T,T,F] | T5 |

|  |  |  |  |
| --- | --- | --- | --- |
| Test case | Input | EO | Results |
| T1 | Course ID = 2 | Management Course Description Page | Passed |
| T2 | Course ID = g | Redirect back to home page | Failed |
| T3 | Course ID = 0.5 | Redirect back to home page | Failed |
| T4 | Course ID = “” | Redirect back to home page | Failed |
| T5 | Course ID = -1 | Redirect back to home page | Failed |
| T6 | Course ID = 0 | Redirect back to home page | Failed |



*Download*

Logic Coverage CACC

Clauses: Valid request: V, Empty course: E, Reg Confirmed: R

**Black box Specs:**

Registration Code -> non-empty string

Characteristics: Empty: True, false (‘’, 0170faf)

Course ID -> non-empty, integer, number, greater than zero.

Same characteristics as previous.

Predicate Reg code! empty && course id! Empty && course id number && course id integer && course id>0

|  |  |  |
| --- | --- | --- |
| Coverage Criteria | Test Requirements | Test Cases |
| Branch Coverage | Invalid Registration Code | T2 |
|  | Course id doesn’t exist | T3 |
|  | Other registrations exist for the course (More than one) | T6 |
|  | No Registrations for the course | T5 |
|  | Registration hasn’t been confirmed | T4 |
|  | Reg code isn’t registered | T6 |
|  | Registration is confirmed | T1 |
| Logic Coverage | [T T T] | T1 |
|  | [F T T] | T2 |
|  | [T F T] | T3 |
|  | [T T F] | T4 |
| Basic Choice | Reg code: [False]  (base) | T1 |
|  | Reg code: [True] | T2 |
|  | Course id:  [number, integer, not empty, positive]  (base) | T1 |
|  | Course id:  [number, integer, not empty, positive] (Infeasible)  => [notNumber, not empty] | T7 |
|  | Course id:  [number, float, not empty, positive] | T8 |
|  | Course id:  [number, integer, empty, positive] (infeasible)  [empty] | T9 |
|  | Course id:  [number, integer, not empty, negative] | T10 |
|  | Course id:  [number, integer, not empty, zero] | T11 |
| Black box Logic Coverage | [T T T T T] | T1 |
|  | [F T T T T] | T2 |
|  | [T F T T T] | T9 |
|  | [T T F T T] | T7 |
|  | [T T T F T] | T8 |
|  | [T T T T F] | T10 |

|  |  |  |
| --- | --- | --- |
| **Test Case** | **Input** | **Expected Output** |
| T1  Registration is confirmed  (Success Scenario) | Course id: 2  Reg code: 0170faf  Registrant => Confirmed = 1 | File is downloaded  Session flash: download successful |
| T2 | Course id: 2  Reg code: “” | Redirect back  File isn’t downloaded |
| T3 | Course id: 123  Reg code: 123 | Redirect back  File isn’t downloaded |
| T4 | Course id: 2  Reg code: 44ad48e  Registrant => Confirmed = 0 | Redirect back  File isn’t downloaded |
| T5 | Course id: 4  Reg code: 123 | Redirect back  File isn’t downloaded |
| T6 | Course id: 3  Reg code: 123 | Redirect back  File isn’t downloaded |
| T7 | Course ID = g  Reg code: 123 | Redirect back  File isn’t downloaded |
| T8 | Course ID = 0.5  Reg code: 123 | Redirect back  File isn’t downloaded |
| T9 | Course ID = “”  Reg code: 123 | Redirect back  File isn’t downloaded |
| T10 | Course ID = -1  Reg code: 123 | Redirect back  File isn’t downloaded |
| T11 | Course ID = 0  Reg code: 123 | Redirect back  File isn’t downloaded |

**Message Controller**

*Feedback*

**Black Box Specs:**

Name-> non-empty string without numbers, email-> non-empty & follows the email format, Message-> non-empty string.

Characteristics:

Name:

empty: true, false (“”, Ahmed)

contains numbers-> true, false (Ahmed23, Ahmed)

Email:

empty: true, false (“”, [ahmed@yahoo.com](mailto:ahmed@yahoo.com))

follow Format: true, false ([ahmed@yahoo.com](mailto:ahmed@yahoo.com), ahmed@com)

Message:

empty: true, false (“”,This is a message)

Logic:

Clauses:

Name: Required, matches format (n\_r, n\_f)

Email: Required, matches format(e\_r,e\_f)

Message: Required (m)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coverage Criteria | Test Requirements | | | | | Test Cases |
| Logic coverage | infeasible | | | | | Infeasible |
| Branch Coverage | Valid inputs | | | | | T1 |
|  | Invalid inputs (e.g. email) | | | | | T2 |
| Base Choice | Name: [Non-empty, noNumbers]  (base) | | | | | T1 |
|  | Name:[empty, noNumbers]   * [empty] | | | | | T3 |
|  | Name: [Non-empty, containsNumbers] | | | | | T4 |
|  | Email: [Matches Format]  (base) | | | | | T1 |
|  | Email: [Doesn’t Match Format] | | | | | T2 |
|  | Message: [Non-empty]  (base) | | | | | T1 |
|  | Message: [empty] | | | | | T6 |
| Black box Logic coverage | N\_r | N\_f | E\_r | E\_f | M |  |
|  | [T T T T T] | | | | | T1 |
|  | [F T T T T] | | | | | T3 |
|  | [T F T T T] | | | | | T4 |
|  | [T T F T T] | | | | | T5 |
|  | [T T T F T] | | | | | T2 |
|  | [T T T T F] | | | | | T6 |

|  |  |  |
| --- | --- | --- |
| **Test Case** | **Input** | **Expected Output** |
| T1  Valid Request | Name= Ahmed  Email= ahmed@yahoo.com  Message= This is a message. | “Success! Message submited.”  Msg appears |
| T2  Invalid Request | Name= Ahmed  Email= ahmed@com  Message= This is a message. | The email must be a valid email address. |
| T3 | Name= “”  Email= ahmed@yahoo.com  Message= This is a message. | The name field is required. |
| T4 | Name= Ahmed23  Email= ahmed@yahoo.com  Message= This is a message. | The name format is invalid. |
| T5 | Name= Ahmed  Email= “”  Message= This is a message. | The email field is required. |
| T6 | Name= Ahmed  Email= ahmed@yahoo.com  Message=”” | The message field is required. |

