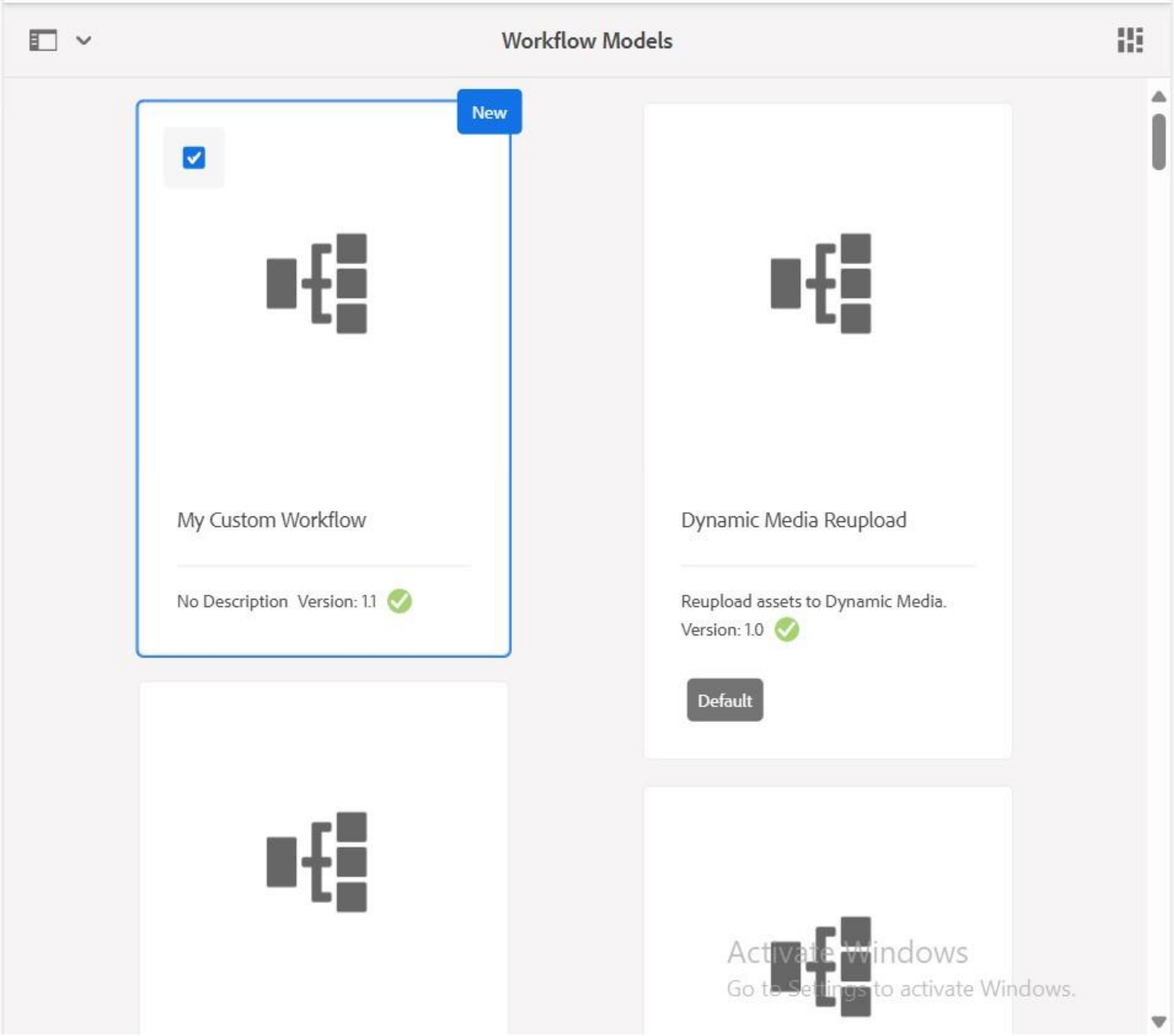
ASSIGNMENT(26.03.2025)

1.Create Custom Workflow (my custom workflow) and



2.Create custom workflow process and print the page title in logs and run this workflow in page so that it can give some metadata in logs

```
package com.myTraining.workflow;

import com.adobe.granite.workflow.WorkflowException; import

com.adobe.granite.workflow.exec.WorkItem; import
```

```
com.adobe.granite.workflow.exec.WorkflowSession; import

com.adobe.granite.workflow.metadata.MetaDataMap; import

com.adobe.granite.workflow.model.WorkflowProcess; import

org.apache.sling.api.resource.Resource; import

org.apache.sling.api.resource.ResourceResolver; import

org.osgi.service.component.annotations.Component; import

org.slf4j.Logger; import org.slf4j.LoggerFactory;


@Component(service = WorkflowProcess.class,          property =

{"process.label=Custom Log Page Title"}) public class PageTitleLogger

implements WorkflowProcess {


   private static final Logger LOG = LoggerFactory.getLogger(PageTitleLogger.class);


   @Override

   public void execute(WorkItem workItem, WorkflowSession workflowSession, MetaDataMap args) throws
WorkflowException {

      String payloadPath = workItem.getWorkflowData().getPayload().toString();        ResourceResolver

resolver = workflowSession.adaptTo(ResourceResolver.class);


      if (resolver != null) {

         Resource resource = resolver.getResource(payloadPath + "/jcr:content");

         if (resource != null) {

            String title = resource.getValueMap().get("jcr:title", String.class);

            LOG.info("Page Title: {}", title);

            LOG.info("Metadata: {}", resource.getValueMap());
```

```
        } else {
            LOG.warn("Resource not found at: {}", payloadPath);
        }
    } else {
        LOG.error("Failed to adapt WorkflowSession to ResourceResolver.");
    }
  }
}
```

3.Create Event handler in aem and print the resource path in logs. package

com.myTraining.event;

import org.apache.sling.api.SlingConstants; import

org.apache.sling.api.resource.Resource; import

org.apache.sling.api.resource.ResourceChange; import

org.apache.sling.api.resource.observation.ResourceChangeListener; import

org.osgi.service.component.annotations.Component; import org.slf4j.Logger; import

org.slf4j.LoggerFactory; import java.util.List;

```
@Component(
  service = ResourceChangeListener.class,
  immediate = true,     property =
{
    ResourceChangeListener.PATHS + "=/content",
    ResourceChangeListener.CHANGES + "=" + SlingConstants.TOPIC_RESOURCE_ADDED,
```

```
        ResourceChangeListener.CHANGES + "=" + SlingConstants.TOPIC_RESOURCE_CHANGED,
        ResourceChangeListener.CHANGES + "=" + SlingConstants.TOPIC_RESOURCE_REMOVED
    }
)
public class ResourceChangeListenerImpl implements ResourceChangeListener {

    private static final Logger LOG =
LoggerFactory.getLogger(ResourceChangeListenerImpl.class);

    @Override     public void onChange(List<ResourceChange>
changes) {        for (ResourceChange change : changes) {
            LOG.info("Resource Change Detected: {} - Path: {}", change.getType(), change.getPath());
        }
    }
}
```

4.create sling job to print hello world message in logs package

```
com.myTraining.jobs;

import org.apache.sling.event.jobs.consumer.JobConsumer;
import org.osgi.service.component.annotations.Component; import
org.slf4j.Logger; import org.slf4j.LoggerFactory;

@Component(
    service = JobConsumer.class,     property = {
```

```
        JobConsumer.PROPERTY_TOPICS + "=com/myTraining/jobs/helloWorld"
    }
)
public class HelloWorldJob implements JobConsumer {

    private static final Logger LOG = LoggerFactory.getLogger(HelloWorldJob.class);

    @Override     public JobResult
process(Job job) {
        LOG.info("Hello World! This is a Sling Job running.");        return
JobResult.OK;
    }
}
```

5. Create one schedular to print the yellow world in logs in every 5 mins through custom configuration using cron expression.

```
package com.myTraining.scheduler;

import org.apache.sling.commons.scheduler.ScheduleOptions;
import org.apache.sling.commons.scheduler.Scheduler; import
org.osgi.service.component.annotations.Activate; import
org.osgi.service.component.annotations.Component; import
org.osgi.service.component.annotations.Deactivate; import
org.osgi.service.component.annotations.Modified; import
org.osgi.service.component.annotations.Reference; import
org.osgi.service.metatype.annotations.AttributeDefinition; import
org.osgi.service.metatype.annotations.ObjectClassDefinition; import
```

```
org.osgi.service.metatype.annotations.Designate; import org.slf4j.Logger; import
org.slf4j.LoggerFactory;

@Component(service = Runnable.class, immediate = true)
@Designate(ocd = YellowWorldScheduler.Config.class) public class
YellowWorldScheduler implements Runnable {

   private static final Logger LOG = LoggerFactory.getLogger(YellowWorldScheduler.class);

   @Reference     private Scheduler
scheduler;

   private String cronExpression;     private
org.apache.sling.commons.scheduler.JobHandle jobHandle;

   @ObjectClassDefinition(name = "Yellow World Scheduler Configuration")     public
@interface Config {

       @AttributeDefinition(name = "Cron Expression",           description =
"Cron expression for scheduler execution")        String cronExpression()
default "0 */5 * * * ?";
   }

   @Activate     @Modified     protected void
activate(Config config) {        this.cronExpression =
config.cronExpression();        scheduleJob();
```

```
    }


    @Deactivate     protected void deactivate() {
if (jobHandle != null) {
scheduler.unschedule(jobHandle);
        }
    }


    private void scheduleJob() {
        ScheduleOptions options = scheduler.EXPR(cronExpression);
options.name("YellowWorldSchedulerJob");
options.canRunConcurrently(false);        jobHandle =
scheduler.schedule(this, options);
        LOG.info("Yellow World Scheduler Job Scheduled with Cron: {}", cronExpression);
    }
    @Override     public
void run() {
        LOG.info("Yellow World!");
    }
}
```

6. Create 3 users and add them in a group(Dev author create this new group) and give permission to read only for /content and /dam folder only and they should have replication access as well.

Java Code

SearchServlet.java :

```
package com.servlet.core.servlets

import com.day.cq.search.Query;

import com.day.cq.search.QueryBuilder;

import com.day.cq.search.result.Hit;

import com.day.cq.search.result.SearchResult;

import com.day.cq.search.PredicateGroup;

import org.apache.sling.api.SlingHttpServletRequest;

import org.apache.sling.api.SlingHttpServletResponse;

import org.apache.sling.api.servlets.SlingSafeMethodsServlet;

import org.apache.sling.api.resource.ResourceResolver;

import org.osgi.service.component.annotations.Component;

import org.osgi.service.component.annotations.Reference;

import javax.jcr.Session;

import javax.servlet.Servlet;

import javax.servlet.ServletException;
```

```
import java.io.IOException;

import java.util.HashMap;

import java.util.Map;

import java.util.List;

@Component(

service = Servlet.class,

property = {

"sling.servlet.paths=/bin/searchContent",

"sling.servlet.methods=GET"

}

)

public class SearchServlet extends SlingSafeMethodsServlet {

@Reference

private QueryBuilder queryBuilder;

@Override

protected void doGet(SlingHttpServletRequest request, SlingHttpServletResponse

response)
```

```
throws ServletException, IOException {

String searchTerm = request.getParameter("query");

if (searchTerm == null || searchTerm.trim().isEmpty()) {

response.setContentType("application/json");

response.getWriter().write("{\"error\":\"Search query isrequired.\"}");

return;

}

ResourceResolver resolver = request.getResourceResolver();

Session session = resolver.adaptTo(Session.class);

if (session == null) {

response.setContentType("application/json");

response.getWriter().write("{\"error\":\"Unable to get JCR session.\"}");

return;

}

try {

Map<String, String> predicateMap = new HashMap<>();

predicateMap.put("type", "cq:Page");
```

```
predicateMap.put("fulltext", searchTerm);

predicateMap.put("path", "/content/servlet");// Adjust this as per your AEM content

structure

predicateMap.put("p.limit", "10"); // Limit to 10 results

Query query = queryBuilder.createQuery(PredicateGroup.create(predicateMap),

session);

SearchResult searchResult = query.getResult();

List<Hit> hits = searchResult.getHits();

StringBuilder jsonResponse = new StringBuilder();

jsonResponse.append("{ \"results\": [");

for (int i = 0; i < hits.size(); i++) {

String pagePath = hits.get(i).getPath();

jsonResponse.append("{\"path\": \"").append(pagePath).append("\"}");

if (i < hits.size() - 1) {

jsonResponse.append(",");

}

}
```

```
jsonResponse.append("] }");

response.setContentType("application/json");

response.getWriter().write(jsonResponse.toString());

} catch (Exception e) {

response.setContentType("application/json");

response.getWriter().write("{\"error\":\"Error executing search: " + e.getMessage() +

"\"}");

}

}

}
```